

PSYCHOSOCIAL EFFECTS OF GIFTED PROGRAMMING

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and Special Education
University of Saskatchewan
Saskatoon**

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ABSTRACT

Academically gifted elementary students in a congregated setting ($n = 165$; 79% of the population) were compared to gifted peers in a regular program ($n = 49$; approximately 45% of the population). All were attending within the same Western-Canadian, urban, public, school division. The objective of this study was to ascertain whether psychosocial wellbeing increases as a function of specialized classroom placement. Mean scores on established measures of self-concept (Multidimensional Self Concept Scale), perception of classroom environment (Classroom Environment Scale), and student life-satisfaction (Multidimensional Student Life Satisfaction Scale) were examined. MANOVAs and post-hoc ANOVAs revealed main effects for educational program but only for certain subscales of the measures (i.e., the composite scores did not vary by program). Students in the congregated program had lower academic self-concept than students in regular programming, thereby replicating the commonly found “Big-Fish-Little-Pond” Effect. Congregated students also had lower personal or “self” satisfaction scores on the life satisfaction measure. In contrast, classroom environment comparisons showed that students in the specialized program thought their classes were more innovative than students in the regular program. However, differences were generally of small magnitude ranging from one-third to one-half of a standard deviation. Moreover, all scores for all measures were at or slightly above scores typically found in normally developing peers. It is suggested that subsequent research be used to ascertain particular qualities of gifted students who may be more likely to benefit from specialized programming.

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1 INTRODUCTION

1.1 Impetus for the Study

Educational reformers argue that psychosocial outcomes should be considered alongside academic outcomes when engaging in educational evaluation, planning, and reform (Ash & Huebner, 1998; also see Philips, 1993 for an overview of psychosocial issues). This study follows up on concerns voiced by respondents in a recent evaluation of the Academically Talented Program offered by the Saskatoon Public School Division (Schwean, 2003). Parents, who participated in focus groups, highlighted what they believed were the social benefits of the AcTal program, including mutual support and the opportunity to interact with students having similar interests and abilities. Conversely, there were also concerns that psychosocial well-being may be compromised by heavy workload, separation from neighborhood peers, lack of extra-curricular opportunities, and deficiencies in social skills. Two thesis projects were undertaken in response to these concerns, including this one and the other entitled “A Comparative Study of Emotional Intelligence and Self-Concept within Academically Talented Students” (Widdifield-Konkin, 2004). The current study sought to examine the overarching research question, “Is the psychosocial well-being of students in the Academically Talented Program of the Saskatoon Public School Division greater than that of equally talented students who opted to remain in regular school programming?” Factors central to this question and the purpose of this study are overviewed next.

Gifted education is enmeshed in the varying philosophical and political debates surrounding the goals of education, conceptions of intelligence, and the education of students who demonstrate a high level of intellectual ability. Gifted students are

considered part of the population of students in need of a special education; however, they do not generally fit the traditional paradigm of special education, since students who are gifted are thought not to have a disability or an intrinsic barrier to their ability to learn. In fact, their well-developed learning aptitude is thought to be the source of need for special programming (i.e., they are thought to have special needs as a result of their “over-ability”), and this, under some circumstances, may lead to behaviour problems, truancy, mental illness, and other difficulties.

Although factors affecting academic outcomes have chiefly been the focus of much educational research, other more subjective and psychosocial outcomes are beginning to attract interest. For example, there has been an increasing recognition of the importance of subjective psychological factors on academic and non-academic outcomes for gifted children (e.g., Plucker & Stocking, 2001). The impact that specific kinds of education programming (e.g., regular class room placement, specialized pull-out) have on the psychosocial well-being of academically talented students is of particular interest.

There has been continuing debate concerning gifted students’ susceptibility versus immunity to various school and life difficulties. Research findings on the well-being of gifted students have generally been mixed. However, these tend to indicate that gifted students are as psychologically healthy, or healthier, than those in the general student population (Grossberg & Cornell, 1988; Nail & Evans, 1997, Parker, 1996, Olszewski-Kubilius, Kulieke, & Krasney, 1988). Preliminary studies have shown though, that variation in psychosocial outcomes in the gifted population appear to be dependent on (a) the type of giftedness, (b) educational fit, and (c) personality characteristics (Neihart, 1999).

1.2 Description and Goals of the Academically Talented Program

The Saskatoon Public School Division has operated special classes for children with above-average scholastic and intellectual ability since 1928 (Saskatoon Board of Education, 1971). The existing program, the Academically Talented (AcTal) program, is a congregated program where gifted children in grades five through eight, from all regions of the city, meet in one of two schools to receive specialized educational programming. The program for academically talented students is designed so that similarly-talented peers work together “in an environment that values and enhances above-average abilities, creativity, and task commitment in its students” (Ginsberg-Riggs, 2003). The further social/emotional objective is to promote students’ experiencing the “...social growth that is possible when working in a congregated setting” (Saskatoon Public School Division, 2001a). Students usually spend two consecutive years with their teacher in this program, followed by two years with another teacher. This longer-than-usual relationship with the teacher is said to be done so “...teachers are able to get in touch with the whole child, and to allow for more student input and thus authentic ownership of the learning experience” (Saskatoon Public School Division, 2001a). Currently, there are eight classes (one per grade per school) in which students receive gifted programming.

1.3 Goals/Strategies of the AcTal Program

According to the brochures provided to prospective students, the main goals of the AcTal program are to cover the core curricular areas and required units of study at each grade, while exploring subject areas in greater depth at a faster rate (Saskatoon Public School Division, 2001b). Students explore themes and topics from a

multidisciplinary approach with the overarching educational objective of building skills, knowledge, and values. The program is designed to promote personal responsibility for learning and to develop creative and critical thinking skills through a variety of teaching and learning techniques and strategies. Cooperation and consideration of other's views are fostered through group activities. The program is tailored to students by offering more choice of subject matter and project formats, through which students are encouraged to explore real-world connections. This format is designed to promote and nurture an appreciation of learning and excellence through three avenues: (a) students appreciating and experiencing the positive impact and stimulation of working with academic peers, (b) students recognizing and accepting individual differences, learning styles, and passions in self and others, and (c) by involving students in the process of evaluation including formal, informal, self, and peer evaluation formats (Ginsberg-Riggs, 2003).

1.4 Selection Criteria for the ACTAL Program

AcTal candidates are identified through observation of high academic performance, including evidence of precocious skills, questions, concerns, and insights. These are considered in conjunction with scores from group-administered tests of academic skills and aptitude. Teachers submit a nomination form including qualitative and quantitative information (shown in Appendix E). The content of questions in the teacher nomination form is largely based on Joseph Renzulli's *Three Ring Conception of Giftedness* which posits that giftedness is a combination of above-average ability, creativity, and task commitment (Renzulli, 1978). In cases where there may be some inconsistent observations and scores, the potential candidate may be referred to the school psychologist for additional assessment. The minimal scores and assessment

outcomes necessary for indicating giftedness are not explicitly mentioned in the program brochures. However, intelligence test scores that are at or above the 98th percentile in the general population have typically been used as a cut-off (Carpenter, 2001), although specific “cut-offs” for entrance to programs like AcTal can shift slightly from year to year based on factors associated with program demand and quotas. For AcTal, a review committee, usually consisting of an AcTal-school principal, the coordinator of pupil services, and one educational psychologist, is involved in declaring “cut-offs” and making final entrance decisions. Some students are required to remain on a waiting list if the program is full. Lastly, prospective students tour the AcTal facilities, meet the teachers, and make their decisions to enroll.

1.5 Background Literature

There is a relatively large body of literature available on giftedness. At least four refereed journals are devoted to research in this area (Gifted Child Quarterly, Roeper Review, Gifted Education, Journal for the Education of the Gifted), and there is a National Research Centre on the Gifted and Talented in Connecticut, United States. Much of the literature has reported on various conceptualizations of giftedness, along with issues related to identification and selection (e.g., the inclusion of minority students in selection) and debates about whether giftedness is a blessing or a curse in terms of educational, vocational, health, and life outcomes. Like other areas of special education, some of the main concerns for gifted education have surrounded best practices and programming for gifted students. One of the emerging debates surrounds whether full-time congregated programs, part time-congregated programs, or mainstream heterogeneous programs are the most beneficial and cost-efficient for students and for

school systems (e.g., Delcourt, Loyd, Dewey, & Goldberg, 1994). However, until recently, there have been relatively few empirical articles published on the emotional lives, perceptions, and perspectives of gifted students (e.g., self-concept, well-being and satisfaction) and even fewer publications relate such factors to programming considerations.

The widely publicized cases of violence in schools, some at the hands of highly capable and intelligent students (e.g., the Littleton, Colorado Incident at Columbine school and the recent gun-wielding incident in Tabor, Alberta, Canada) have provoked interest in emotive factors and their relationship to school and life outcomes. Recent research has started to focus on how students, especially how gifted students and others in special programs, perceive themselves, their competencies, and their physical and social learning environment. Some such studies have examined self-concept in gifted students but have produced inconsistent results, although findings tend to suggest that “educational placement, or the educational fit influences the adjustment of the child” (Neihart, 1999). Generally, the findings do not support any one type of program being better than others, but advantages and disadvantages of various programs have been noted (Delcourt et al., 1994). Neihart (1999), in her review of research relating to the well-being of gifted students, was careful to note that the well-being of gifted students appears to be largely connected to educational fit. More particularly, she made the statement that specialized programming may be key to promoting the well-being of gifted students, as seen in her concluding statement below.

Intellectually or academically gifted children who are achieving, and participate in a special education program for gifted students are, at least, as well adjusted

and are perhaps better adjusted than their non-gifted peers. These children do not seem to be any more at-risk for social or emotional problems. It is clear from the research that giftedness does influence psychological outcomes for people, but whether these outcomes are positive or negative seems to depend on several factors that interact synergistically. These factors are the type and degree of giftedness, the educational fit or lack thereof, and one's personal characteristics.

(Neihart, 1999, p.12).

In summary, the type of programming in which one is involved, especially whether a gifted student is in specialized programming or not, is thought to be important to well-being. Therefore, it was considered to be worthy to investigate this in relation to the benefits of the AcTal program in Saskatoon.

1.6 Purpose of the Study

This research sought to gather further information about the psychosocial advantages and disadvantages of participation in a congregated program for gifted students in Saskatoon. Given the absence of student input in the recent AcTal Program review, the main purpose of the current study was to compare gifted students enrolled in the Academically Talented program to their gifted peers in regular school programming. Students were compared on various constructs theorized to be strongly associated with psychosocial well-being, including self-concept, life satisfaction, and classroom environment. Through this, it was hoped that this research could aid parents and educational professionals in identifying the most appropriate educational programming for gifted students and that it may further assist with decision-making for parents and school administrators who are considering the use and or delivery of programs for gifted

students. Possibly, the results of this research, in conjunction with that of Schwean (2003) and Widdifield-Konkin (2004), could lead to some refinement in the programming available for academically talented children in the Saskatoon Public School Division.

2 LITERATURE REVIEW

2.1 A Brief History of Precociousness

For many hundreds of years, persons with an unusually high facility in various intellectual and skill domains have been recognized. Cases range from those whose abilities cross the gamete of science, philosophy, and art (e.g., Leonardo DaVinci) to particular domains of genius, such as the widely renowned musical genius of Mozart and Beethoven and the scientific genius of Newton, Einstein, or more currently, physicist, Steven Hawkins. Some theorists (e.g., Gardiner) argue for the existence of other areas of intelligence and genius, such as kinesthetic genius (e.g., Wayne Gretzky, Tiger Woods). However, the value and social acceptance of such talented and able individuals has waxed and waned considerably.

Prior to the studies of intellectual ability by Terman in 1925 (Terman & Oden, 1947 as cited in Fiedler, 1999), it was widely believed that persons with unusually high intellectual or scholastic ability were oddities destined to live a life of isolation and even mockery. Terman's studies of intellectual ability began to show that such persons were not predestined to misfortune and that they were just as likely, if not more likely, to be well-adjusted, happy, and successful as "normal" individuals. Three decades later, the "race for space" began, with the Russians successfully launching Sputnik in 1957. This was the burgeoning of a new era in appreciating, promoting, and cultivating the "gifts" of persons with high scholastic ability, especially scientific and mathematical ability (Fiedler, 1999, p.403).

In 1972, the Marland report brought awareness of the special needs of gifted students. This report involved the first large-scale effort to determine what provisions

should be made by United States schools to foster the development of gifts and talents of the most capable students (discussed in Fiedler, 1999). The Marland report also identified six areas in which students could be gifted or talented: (1) general intellectual ability; (2) specific academic aptitude; (3) creative or productive thinking; (4) leadership ability; (5) ability in the visual and performing arts; and (6) psychomotor ability. Until the time of this report, the concept of “gifted” was virtually unknown in school systems (Fiedler, 1999).

Not long after the Marland report, the Jacob K. Javits, Gifted and Talented Education Act of 1988, was issued. This act affirmed the necessity of providing appropriate educational opportunities for all gifted and talented students in the United States of America. This act was later revised, only slightly, to become the Jacob K. Javits, Gifted and Talented Education Act of 1994, as cited below:

The Congress finds and declares that...

- (1) all students can learn to high standards and must develop their talents and realize their potential if the United States is to prosper;
- (2) gifted and talented students are a national resource vital to the future of the nation and its security and well-being;
- (3) too often schools fail to challenge students to do their best work, and students who are not challenged will not learn to fully develop their talents, and realize their potential;
- (4) unless the special abilities of gifted and talented students are recognized and developed during elementary and secondary school years, much of such students' special potential for contributing to the national interest is likely to be lost;
- (5) gifted and talented students from economically disadvantaged families and areas, and students of limited-English proficiency are at greatest risk of being unrecognized and of not being provided adequate or appropriate educational services;
- (6) state and local educational agencies and private nonprofit schools often lack the necessary specialized resources to plan and implement effective programs for the early identification of gifted and talented students and for the provision of educational

services and programs appropriate to their special needs.

(United States Code, Title 20 – Education, Chapter 70, Subchapter 10, 1994)

This law continues to provide the legal backing and justification for the provision of special gifted education in the United States.

In Canada, no such overarching law has been passed, partly because each province is responsible for the implementation of its own educational legislation. Currently, there are no standards for programming with gifted students in Canada, and “many school systems still leave the responsibility to individual teachers to meet the needs of high ability students” (Leroux, 2000, p.699). Only the province of Ontario mandates programs for gifted students. Leroux has claimed that lack of services for gifted students in Canada is the result of unclear policies regarding the appropriate education of gifted students:

That while equity in education is publicly legislated policy across Canada, programs and services for gifted children most frequently are subsumed in the regular classroom because there is no consistent legal mandate or support for a wide range of other services. (p.696)

Part of this problem stems from the fact that teacher-education programs do not provide courses in how to educate gifted students; only cursory instruction may be received in a class covering “exceptionality”. There is no specialization in gifted education for student teachers at any Canadian university, and nothing has been mandated in terms of qualifications for teachers responsible for gifted and talented education in Canada (Leroux, 2000, p. 696). It is ironic that Saskatchewan, with one of the few surviving

congregated gifted programs, offers no university classes for the purpose of providing prospective teachers with knowledge and practice in gifted education.

There has been growing emphasis on “equality”, inclusion, and cost-effectiveness in education. Efforts have been put toward “inclusion”, whereby students of all abilities and temperaments are included in a single classroom. This has not exempted gifted students (McDaniel, 2002). Furthermore, judging by numerous internet articles on the topic, there appears to be a popular conception that gifted education is an elitist activity that provides additional learning resources to a group of students who do not require such services (for example, see <http://www.hoagiesgifted.org/elitist.htm>). Of late, emphasis and allotment for funding of special academic programming for gifted persons has dropped considerably, and organizations that previously supported giftedness, at least in Canada, have diminished and disappeared (Leroux, 2000). The Saskatoon Public School Division is the only center in Saskatchewan that continues to provide specialized programming for gifted students.

2.2 Definitions of Giftedness

Despite numerous definitions and connotations of giftedness, the Gifted and Talented Education Act of 1988 continues to provide the legal definition for giftedness in the United States. According to this act gifted students are...

...children and youth who give evidence of high performance capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and require services or activities not ordinarily provided by the school in order to fully develop such capabilities. (Elementary and Secondary

Education Act, Title IV, Part B of Public Law 100-297, 1988, as cited in Fiedler, 1999).

According to Fiedler (1999), the Columbus Group attempted to put more emphasis on the social and emotional needs of gifted persons by defining giftedness and its associated challenges in the following way:

Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. This uniqueness renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally. (Unpublished manuscript cited in Fiedler, 1999, p.405)

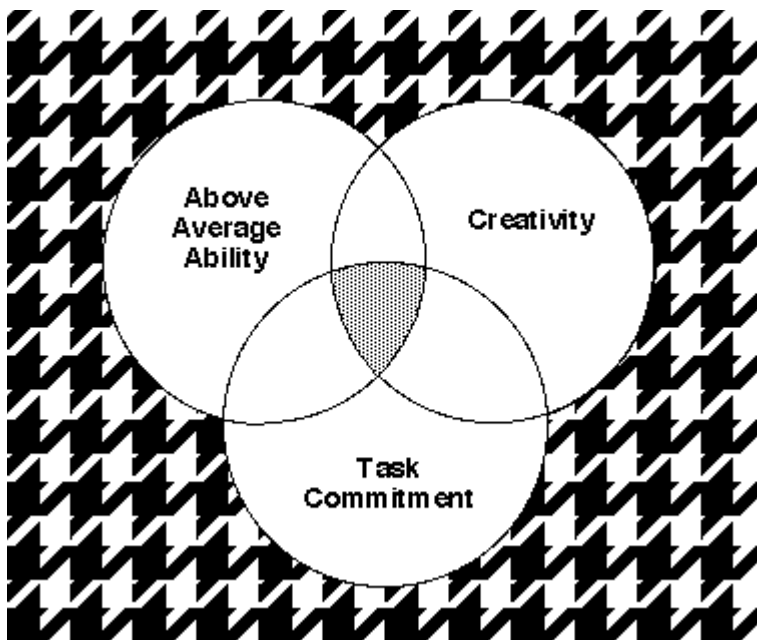
Alternatively, yet again, Gallagher (2000a) described the following definition as being one of the most widely accepted, comprehensive, and up-to-date definitions of giftedness:

Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (p.682)

The definition of giftedness used by the school division hosting the current study is Renzulli's (1978). As depicted in Figure 2.1 below, his definition of giftedness is

considered to involve “the interplay of three main and necessary qualities: above-average ability, task commitment or intrinsic motivation, and creativity” (Renzulli, 1978). This theory is explained further in the section describing programming considerations (p.23 – 24).

Figure 2.1 The Three-Ring Conception of Giftedness. Taken from Saskatoon Public School Division (2005).



2.2.1 Associated characteristics of gifted individuals. According to Silverman (1993; as cited in Fiedler, 1999, p.406), intellectual characteristics of gifted persons include the following: exceptional reasoning ability, intellectual curiosity, rapid learning rate, facility with abstraction, complex thought processes, vivid imagination, early moral concern, passion for learning, powers of concentration, analytical thinking, divergent thinking/creativity, keen sense of justice, and capacity for reflection. The personality characteristics listed are insightfulness, need to understand, need for mental stimulation, perfectionism, need for precision/logic, excellent sense of humour, sensitivity/empathy, intensity, perseverance, acute self-awareness, nonconformity, questioning rules/authority,

and tendency toward introversion (Silverman, 1993, as cited in Fiedler, 1999). Research has also revealed that students who spend more time on homework and leisure reading are more likely to be academically gifted than those who do not (Konstantopoulos, Modi, & Hedges, 2001). High parental expectations and family socioeconomic status are also important predictors of giftedness (Konstantopoulos, Modi, & Hedges, 2001). As a mode of comparison, the Saskatoon Public School division uses the following table, from Szabos (1989), in their AcTal brochures (Saskatoon Public School Division, 2001a) and on their website (Saskatoon Public School Division, 2005) to highlight distinguishing characteristics of good students and academically talented students:

Table 2.1. Comparison of Bright Students versus Gifted Learners

Good Student	Gifted Student
Knows the answers.	Asks the questions.
Is interested	Is highly curious
Is attentive	Is mentally and physically involved
Has good ideas	Has wild, silly ideas
Works hard.	Plays around, yet tests well.
Answers the questions	Discusses in detail, elaborates
Top Group	Beyond the group
Listens with interest	Shows strong feelings and opinions
Learns with ease.	Already Knows
6 to 8 repetitions for mastery	1 to 2 repetitions for mastery
Understands ideas	Constructs abstractions
Enjoys peers	Prefers Adults
Grasps the meaning.	Draws Inferences
Completes Assignments.	Initiates Projects.
Is receptive.	Is Intense.
Copies accurately.	Creates a new design.
Enjoys school.	Enjoys Learning.
Absorbs Information.	Manipulates Information.
Technician	Inventor
Good Memorizer	Good Guesser.
Enjoys straightforward, sequential presentation.	Thrives on complexity.
Is alert.	Is keenly observant.
Is pleased with own learning.	Is highly self-critical.

Adapted from Janice Szabos (1989) *Challenge*, Good Apple, Inc. Issue 34.

2.3 Under Representation of Ethnic Minorities and Girls.

There is an under representation of minority students who are designated gifted and who are selected to participate in gifted programs, and this has typically been used to argue that selection procedures are biased (Maker, 1996). As such, the most active area of gifted research seems to focus on the under representation of persons from various ethnic minorities (e.g., Hussain, 1990; LeRose, 1978; Uresti, Goertz, & Bernal, 2002). This has also been a factor in the arising emphasis on using more than traditional intelligence test measures in the identification of giftedness and the development of new, less culturally biased, measures to identify giftedness (Hussain, 1990; Larson & Borgen, 2002; LeRose, 1978; Sarouphim, 1999; Uresti, Goertz, & Bernal, 2002).

Relative to boys, other studies have documented the disproportionately low number of girls identified as gifted and the relatively high rate of underachievement of women and girls having very high academic aptitude (Noble & Smyth, 1995; Noble, Subotnik, & Arnold, 1999). Noble, Subotnik and Arnold (1999) identified three major barriers to the success of women who have been identified as gifted: (a) the discouragement of high self-esteem, in favour of modesty, (b) the “glass ceiling”, where few women reach top level vocational positions; and (c) the maternal, domestic and vocational balancing act where women are still required to spend more time than men in the child-rearing role.

2.4 Risk/Resilience

Resilience has been defined as “protective factors” which “modify, ameliorate, or alter a person’s response to some environmental hazard that predisposes to a maladaptive outcome” (Rutter, 1987). A large multi-ethnic study by Werner (1989, 1993; Werner &

Smith, 1989, 1992 as cited in Dole, 2000) found three main factors to be associated with resilience: (a) at-least average intelligence, self-efficacy, and self-esteem; (b) affective and supportive family ties; and (c) external support systems at school, work, or church which rewarded competence. Gifted children have generally been found to have many of these qualities (see Bland, Sowa, and Callahan, 1994, for review). Bland et al.'s (1994) summary of the empirical literature noted three main findings that indicated gifted students are generally well adjusted: (a) gifted students have been found to be less prone to anger, loneliness, and anxiety; (b) gifted students are less likely to exhibit somatic problems such as depression, withdrawal, psychosis, or hyperactivity; and (c) the incidence of severe problems is about the same as found in the general population. This summary corresponded well with the findings of Neihart (1999), who concluded that gifted students are, at-least, as immune ("resilient") to problems and difficulties as other students, provided they are participating in a gifted program of some kind.

It has been argued, however, that gifted children and youth also possess a set of personality characteristics, such as perfectionism and excitability that make them uniquely vulnerable to mental health dysfunction, social, and emotional problems (Pfeiffer & Stocking, 2000). A study that compared teacher ratings of eighty-one gifted students to the same number of regularly-developing students matched for age and gender (Merrell, 1994) found that gifted children had generally higher levels of social competence and lower levels of anti-social behaviour. In contrast, though, there was a small subset of gifted children who displayed the opposite pattern (i.e., extremely poor social competence and high levels of behaviour problems). Pfeiffer and Stocking (2000) have further suggested that school personnel and parents need to be cognizant of these

risk factors so that they can provide coordinated and comprehensive educational and social opportunities to foster resilience and to provide preventive and therapeutic mental health interventions for gifted students when needed. Although gifted students are generally resilient, it appears that there may be certain vulnerabilities that make them susceptible to psychosocial problems if these are not addressed early on.

2.5 Controversies Over the Offering of Specialized Gifted Education

There are some people who argue that gifted students should be provided the same education as non-gifted students (e.g., Margolin, 1996; Sapon-Shevin, 1994, 1996). In other words, opponents of special services argue that gifted students are already advantaged and do not require special services because they are more than academically able (Sapon-Shevin, 1994, 1996). Most of the other common reasons used to argue against specialized gifted education are as follows: (a) gifted children will make it on their own; (b) gifted children can be handled adequately in a regular classroom; (c) programs for gifted children are good for all children; (d) gifted children must learn to get along with their peers; (e) everyone is gifted (British Columbia Teachers' Federation, 2004). Some critics have gone as far as to argue that students are gifted because they have so many educational supports and resources to begin with (i.e., encouraging and educated family members with many socioeconomic resources; Sapon-Shevin, 1996; Oakes, 1985). In other words, giftedness is socialized; it is the result of what happens when children have numerous educational resources, high motivation, hard work, and various supports (Oakes, 1985 cited in Gallagher, 2000; Sapon-Shevin, 1994, 1996). Given this notion, the argument is that students who have such advantages early on, should not be afforded more resources (Gallagher, 2000b).

In return, proponents of gifted programming contend that there should be special services for gifted students because of their susceptibilities to boredom, withdrawal, and behaviour problems if they are not provided the appropriate intellectual stimulation (Winner, 2000). As a proponent of gifted education, Gallagher (2000b) has presented a counterargument about why there should be gifted education, which he begins by asking his first question - "Is there really such an entity as a gifted child?" In addressing this question, his contention is that gifted programming would obviously not be necessary if it could be established that giftedness, as an innate individual quality, does not exist. Gallagher notes that there is a revitalized debate about whether giftedness is "...merely the favorable confluence of circumstances that allows one youngster to make full use of his or her talents while other youngsters are stunted in their true potential" (p.5). In making his argument for the true existence of giftedness and gifted individuals, Gallagher reviewed evidence of the close relationship between the abilities of adopted children and those of natural parents and the close correlation in IQs between identical twins who are reared apart, which usually are within the .70 to .75 range (e.g., Bouchard, Lykken, McGue, & Segal, 1990). Gallagher also cited the presence of prodigies as his second line of evidence. While he admitted a role for environmental factors and nurturance, he argued that it is unreasonable that persons become prodigies as a result of mainly environmental causes.

Another defendant of gifted education, Winner (2000), has agreed with critics of gifted education in as far as hard work and practice strongly correlate with outstanding achievement (Ericsson, Krampe, & Tesch-Roemer, 1993). However, in qualifying these findings, she also has argued that hard work is necessary, but non-sufficient, for

encouraging maximal achievement and outcome in academically talented students. For example, Newton studied diligently for over twenty years to derive his laws of physics, but this did not imply that only practice and concentrated study would be required to achieve what Newton did (Winner, 2000). Winner fueled her etiological argument with evidence of atypical brain organization, citing evidence that children with precocious mathematical abilities show: (a) enhanced brain activity in their right hemisphere, evidenced by higher performance on facial recognition tasks, (b) disproportionate left-handedness associated with “anomalous” brain dominance, and (c) more bilateral and symmetrical brain organization than is typical. In summary, Winner has strengthened Gallagher’s position by adding that there is clear biological evidence that giftedness exists, and that it should be fostered through special types of programs to allow for the practice and honing of skills associated with these talents.

Given that there is strong empirical evidence in favour of the inborn nature of giftedness, the criticism that gifted education is elitist has typically been responded to in the following form: “If special gifted programs are elitist, so must be the programs and special classes for students to study sports and music”. However, it is generally agreed that this is not true. The writer for a British Columbia Teachers’ website has offered the following commentary:

And we are all athletic and musical to a degree. But we cannot all achieve at the same level all the time. If we could, Olympic medals would be as common as dollar coins and we could all hold concerts to international audiences. (British Columbia Teacher’s Federation, 2004)

Therefore, it follows that if students who are talented at sports or music have an opportunity to build their talents, then so should students who are gifted in more academic disciplines (e.g., language, mathematics, and science). Although there may be some truth in this argument, it begs the question as to “What abilities should be fostered?” For example, should there be special schools for talented students to develop skills pertaining to each of Gardiner’s multiple intelligences (discussed below on page p.27)? Whether one agrees with this line of reasoning, this type of analogy is often cited by proponents of special gifted education. Despite the controversies and opposing arguments, it will be seen in the next section that, currently, educational reformers and experts in the study of intelligence are tending to take a middle ground. They have proposed an enhanced education for all students, incorporating aspects of what was traditionally thought of as programming exclusive to gifted students, while promoting special opportunities for students who demonstrate a clear talent in various academic domains.

2.6 Current Theories of Intelligence, Giftedness, and Educational Programming

According to Sternberg’s latest theory of learning and intelligence (Sternberg 1997a, 1999b, 1999c as cited in Sternberg & Gregorenko, 2002), all students should be taught in relation to the following conceptualization of intelligence:

Successful intelligence is the ability to succeed in life according to one’s own definition of success, within one’s sociocultural context, by capitalizing on one’s strengths and correcting or compensating for one’s weaknesses; in order to adapt to, shape, and select environments; through a combination of analytical, creative, and practical abilities. (p.265)

Sternberg and Grigorenko (2002) assert that the model of “successful intelligence” can be applied to promote the well-being and learning of gifted students and all other students. Although their model applies to gifted populations, it appears that these authors are more in favour of a new educational paradigm that would generalize to all students regardless of ability level. Sternberg’s model, based on his triarchic theory of intelligence, encompasses the three domains of the analytical, practical and creative. Within this context, he has proposed that more emphasis should be put on the creative and practical application of intellectual concepts. This, he has said (Sternberg & Gregorenko, 2002), should be in addition to the traditional analytical and memory-focused learning of regular education programs.

Gardner has focused on an even wider application of intellectual ability to various pursuits and skill areas. Although most intelligence tests include a measure of general intelligence, Gardiner theorized “that the human mind is better thought of as a series of relatively separate faculties, with only loose and nonpredictable relations with one another” (Gardiner, 1999, p.32 as cited in Gilman, 2001). Gardiner has argued for the existence of eight intelligences (e.g., logical-mathematical, linguistic, spatial, bodily kinesthetic, naturalistic, interpersonal, intrapersonal, and existential/spiritual) based on various criteria (Gilman, 2001). Gardiner’s main contribution to theory of gifted education was in recognizing that traditional tests tend to only measure logical-mathematical and linguistic capabilities and overlook other areas of high ability. This, thereby, excludes many people who are gifted in areas not traditionally measured by intelligence tests. Gardiner advocates for the cultivation of skill and excellence for children gifted in all domains of intelligence (as discussed in Gilman, 2001).

Renzulli and Reis' Schoolwide Enrichment Model (Renzulli, 1977, 1984a, 1984b; Renzulli & Reis, 2000; Renzulli & Smith, 1977) proposes three levels of enrichment:

1. "Type I enrichment is designed to expose students to a wide variety of disciplines, topics, occupations, hobbies, persons, places and events that would not ordinarily be covered in the regular curriculum" (p. 370) through a variety of mediums including various speakers, minicourses, demonstrations, performances, slides, videotapes and other non-print media.
2. "Type II enrichment consists of materials and methods to promote the development of thinking and feeling processes" through (a) creative thinking and problem solving, critical thinking, and affective processes; (b) learning how-to-learn skills, (c) using advanced-level reference materials; and, (d) written, oral, and visual communication skills.
3. "Type III enrichment involves students who become interested in pursuing a self-selected area and are willing to commit the time necessary for advanced content acquisition and process training", including opportunities for applying interests, developing authentic products involving self-directed planning, organizing, managing time, and self-evaluation, and through this, developing self-confidence, task commitment, and creative accomplishment.

(Renzulli & Reis, 2000, p.370)

In general, Renzulli and Reis have stated that the first two "types" of enrichment could be used for non-gifted students but that type III enrichment should be reserved for gifted students (Renzulli & Reis, 2000).

Renzulli and Reis have made claim that their enrichment triad (creativity, ability, task commitment) should be incorporated within the framework of their School Wide Enrichment Model. It is claimed that this model is used to “accommodate the needs of gifted students, and at the same time it provides a challenging learning experience for all students” (Renzulli & Reis, 2003). Renzulli and Reis outline their goals as follows:

- (a) To employ a continuum of special services to challenge students in “any and all aspects of the school and extracurricular program”
- (b) To infuse into general education opportunities for high end learning by (a) challenging all students to perform at advanced levels, (b) by leaving it to the discretion of teachers to decide which students should be afforded extra opportunities, resources, and encouragement
- (c) Preserve and protecting the positions of gifted education specialists.

Similar to the position of Sternberg, one of the main concerns of Renzulli and Reis (2003) is that creative-productive giftedness, “...putting one’s abilities to work on problems and areas of study that have personal relevance to the student that can be escalated to appropriately challenging levels” (p. 185) is not usually detected by traditional intelligence tests. According to what Renzulli and Reis’ refer to as a “rising tide lifts all ships approach” (i.e., benefits for all students), the Schoolwide Enrichment Model (SEM) prescribes the identification of a talent pool (ten to fifteen percent of above average ability/high potential students) of students who should be offered special services in their regular classrooms (e.g., acceleration, enrichment, counseling) based on the three types of enrichment. Additionally, Renzulli and Reis have recommended that “enrichment clusters” should be offered whereby all students and teachers (not only the

top 10 to 15%) would meet in various groups, weekly, for work on developing advanced knowledge and practice on various topics (e.g., creative writing). Renzulli and Reis have noted the successful application of their program in numerous socioeconomically-varied school districts (Renzulli & Reis, 1994; also summarized in Renzulli, 2003).

Interestingly, it seems that the Saskatoon Public School Division is not following the Schoolwide Enrichment Model, given that programming is offered in separate AcTal classes unavailable to the majority of students. However, it may also be the case that congregated programs, as separate entities, can also successfully employ Renzulli's SEM. This, however, is contrary to the main tenet of allowing all students, or at least many more than one or two percent of the population, to benefit from special opportunities. With this said, it should be noted that the AcTal brochures only state that students are selected based on Renzulli and Reis' definition of giftedness, and it is not explicitly stated that the AcTal programming is related to this model.

2.7 Effects of Various Programs on Gifted Students.

One of the earliest and simplest methods thought to meet the needs of gifted students was through academic acceleration: younger children attend classes above that of their age group (e.g., a grade-two student goes to the grade four classroom for mathematics class). This approach has lost popularity due, speculatively, to social disruptions thought to result from placing gifted students among those at higher levels of social development, which is believed to result in poorer social relationships for students. However, this belief has also largely been debunked as "...it clear that gifted students need opportunities to be among their peers, no matter what their age differences" (Coleman & Cross, 2001 cited in Cross, 2002). Contrary to strong beliefs opposing this

method of addressing the academic needs of gifted students, Duford (1995) came to the following conclusions about acceleration in her systematic review: (a) academic outcomes of acceleration are positive; (b) no careful research has demonstrated negative social or emotional outcome of acceleration; (c) gifted children who are not intellectually stimulated may become underachievers; (d) acceleration is not widely used in Canada or the United States. Interestingly, despite mounting evidence to the contrary, acceleration has been labeled as harmful and, as such, has virtually been eliminated as a mode of teaching gifted students.

One of the most convincing and largest-scale comparative studies on the effects of various programs for gifted students was the Learning Outcomes Study at the University of Virginia (Delcourt, Lloyd, Dewey, & Goldberg, 1994). This was a two-year investigation of more than 1,000 students. It compared gifted students in within-class programs to those in pull-out, separate classes and special schools. It also compared students in these programs to those of equally high ability who did not attend special programs and provided a further comparison to a control group of nongifted students. The study took place over four states where they examined students in urban, suburban, and rural environments including individuals from “underserved” populations. Data was provided by students, parents, and teachers on variables of achievement, attitudes toward learning processes, self-perception, intrinsic/extrinsic motivation, student activities, behavioural adjustment, and teacher ratings of learning, motivation, and creativity. It was collected at the beginning and end of two consecutive years (1990/1991).

Results of the study (Delcourt et al., 1994) showed that gifted students attending special programs (special schools, separate classes, and pull-out programs) performed

better academically than the gifted students not in such programs. No differences were found on measures of social acceptance and internal versus external criteria for success/failure. Further, no differences were found between the four groups on incidence and seriousness of behavioural problems. Students in special schools reported the highest scores in their rating of the classroom as student-centered, but teachers rated them lower in regard to creativity, learning, and motivation. Students in the separate class programs, which closely paralleled the AcTal program, demonstrated the highest levels of academic achievement but also reported the lowest levels of perception, academic competence, preference for challenging tasks, acceptance by peers, internal motivation, and the least positive attitudes toward learning. Notably, the achievement level of African American students in the gifted programs also remained above the national average. In summary, Delcourt et al's (1994) table of findings has been adapted for this thesis and is shown in Table 2.2.

Table 2.2. Advantages and Disadvantages of Various Gifted Programs

	Description	Pros	Cons
Special School	<ul style="list-style-type: none"> • Separate facility dedicated to gifted program 	<ul style="list-style-type: none"> • No effect on achievement of non-gifted • Higher levels of achievement 	<ul style="list-style-type: none"> • Major budget constraint • Teachers rate lower in creativity/learning/motivation • Lower Perception of Scholastic Ability
All in One Class	<ul style="list-style-type: none"> • Sets up grade specific classes for all gifted students 	<ul style="list-style-type: none"> • Higher levels of achievement 	<ul style="list-style-type: none"> • Teachers rate lower in creativity/learning/motivation • Enrollment size per class may mean busing • Lower perception of scholastic ability
Pull Out	<ul style="list-style-type: none"> • Students leave regular class for session with gifted specialist 	<ul style="list-style-type: none"> • Higher levels of achievement • Current model in place 	<ul style="list-style-type: none"> • Disruptive to regular class • Questions of effectiveness
Cluster	<ul style="list-style-type: none"> • Smaller groupings in class by abilities • Scheduled meetings after school/weekends for gifted • Field trips/activities for gifted only • Places gifted students together to allow for mutual support/help 	<ul style="list-style-type: none"> • Facilitates learning with other gifted • Provides forum for learning • Targeted activity to support gifted • Develops leadership role of gifted 	<ul style="list-style-type: none"> • Managerial issues for teacher, may require additional help • Budget constraint • Inconvenience to parents/students • Disruptive to class • “Elitism” • Does not meet learning needs of gifted
Accelerated Learning	<ul style="list-style-type: none"> • Facilitates gifted student learning at their own pace • Extreme case allows gifted to complete school at faster pace 	<ul style="list-style-type: none"> • Geared for self-motivated student 	<ul style="list-style-type: none"> • Ignores emotional development • Student may not accelerate at a comparable rate for all subjects
Integrated with Regular Class	<ul style="list-style-type: none"> • No segregation of gifted/non-gifted 	<ul style="list-style-type: none"> • More confidence in ability • Preferred Challenges • Stimulates independent work 	<ul style="list-style-type: none"> • Lower achievement results • Will require dollars to train all teachers to meet gifted needs

Table adapted from (Delcourt et al., 1994) *Evaluation of the Effects of Programming*.

A study over four years at York University in Toronto showed that students who participated in a congregated gifted program in high school did not have increased levels of achievement in university (i.e., grade point average), but they did show slightly higher thinking, reasoning, problem-solving skills, and faster credit completion (Chernos, 2000). In a different study, Feldhusen, Sayler, Neilson, and Kollof (1990) found that forty gifted children (grades three to eight) who were in a creativity-focused pullout program (2-3 hrs/wk) had greater improvement in various aspects of self-concept over students who qualified but did not participate (n = 20).

Rogers (2002), in a review of gifted programs, noted the difficulty in drawing conclusions about the research on ability-grouping or congregating. This was said to be due to the substantial differences and inconsistency in the 750 studies on ability grouping and more than 300 studies on cooperative learning and acceleration that were examined. In discussing the psychological and social affects of grouping gifted students, Rogers (2002) concluded that...

What seems evident about the spotty research on socialization and psychological effects when grouping by ability, is that no pattern of improvement or decline can be established. It is likely that there are many personal, environmental, family, and other extraneous variables that affect self-esteem and socialization more directly than the practice of grouping itself. (p.9)

Rogers (2002) further concluded that gifted learners need some form of grouping by ability to effectively and efficiently accomplish the educational goals of appropriately broadened, extended, and accelerated curricula (p.13). He admitted, however, that there

may be some merit to arguments that congregated programs reduce opportunities to appreciate cultural diversity by isolating gifted students from other students.

2.8 Gifted Program Evaluations: Excluding the Psychosocial Experience of Students

Reviews of gifted programs have lacked in number and in sophistication (Avery & VanTassel Baska, 2001; Callahan, 1983; Hunsaker & Callahan, 1993; Traxler, 1987). In Canada, evaluation processes have been inconsistent, and as reported in a national survey completed in 1998, school boards in seven provinces have no evaluation procedures for their gifted programs (Leroux, 2000). Only one such evaluative study reported incorporating student input into the evaluation (Parke & Buescher, 1982). In this study, students were responsible for providing qualitative data on the personal acceptability of their academic progress, which was compared to actual grade attainments. It appears that, to date, student input on matters of personal satisfaction and well-being have not been considered a part of gifted program evaluations. This was recognized as an important missing component in the latest Saskatoon Public Schools AcTal program evaluation.

2.9 Examining the Psychosocial Experience of Students: Choosing Pertinent Factors

In recognition of the importance of investigating the subjective experience of students, the goal of the current study was to collect information directly from students as an enquiry into the well-being of the students in their respective academic programs. The following excerpt introduces what is meant by well-being:

Well-being is a complex construct that concerns optimal experience and functioning. Current research on well-being has been derived from two general perspectives: the hedonic approach, which focuses on happiness and defines well-

being in terms of pleasure attainment and pain avoidance; and the eudaimonic approach, which focuses on meaning and self-realization and defines well-being in terms of the degree to which a person is fully functioning. (Ryan & Deci, 2000)

Since psychosocial well-being is a complex construct incorporating the effects of numerous factors, only a few factors thought to comprise psychosocial well-being could be selected for investigation here based on realistic limits of time and other resources. As such, a certain few factors thought to be of sufficient breadth and depth to generally capture a sense of the well-being of gifted students was selected. It was decided that the research would focus on self-concept, which has been described as "...a major intrapersonal correlate of positive well-being" (McCullough, Huebner, & Laughlin, 2000). Self-concept was also selected because measures of self-concept have been well validated in studies and typically self-concept has been found to be a strong indicator of subjective well-being (e.g., Alfermann, 2000; Cross, Gore, Morris, 2003; Kim, 2003; Yang, 2002), with this holding true for elementary student populations (e.g., Chang, McBride, & Stant, 2003; Gilman & Huebner, 2003; Leung & Leung, 1992). Secondly, life satisfaction has been defined as one of the three major components of psychological well-being within the hedonic perspective (Diener, Sapyta, & Suh, 1998; Diener, Suh, Lucas, & Smith, 1999; Ryan & Deci, 2000). Therefore, it was thought to be worthy to investigate the level of satisfaction of students within their respective programs. To date, there has been considerable emphasis on the person-environment fit in the study of well-being (reviewed in Walsh, 2003). This was thought to be an important area of investigation in this study, since the primary area of interest here is the differential

influence of two types of learning environments. The relevant research on each of these constructs is more fully described below.

2.10 Factor #1: Self-Concept

2.10.1 Construct Definition. One of the earliest definitions of self-concept simply referred to one's perception of one's self (Shavelson, Hubner, & Stanton, 1976).

According to Byrne (1984), self-concept refers to "our attitudes, feelings, and knowledge about our abilities, skills, appearance, and social acceptability" (Byrne, 1984, p.429). It is one's understanding of the self relative to others, and it can vary according to reference group and according to the responses and reflections of others. However, it has been realized that persons do not just have a single all-encompassing perception of themselves; rather, they have multiple perceptions of themselves in multiple domains (Bracken, 1992; Harter, Bresnick, Bouchev, & Whitesell, 1997; Shavelson, Hubner, & Stanton, 1976).

Shavelson, Hubner, and Stanton (1976) identified seven features of self-concept:

1. It is organized or structured, in that individuals categorize information that they have about themselves and relate these categories to one another.
2. It is multifaceted, and the particular facets reflect a self-referent category system adopted by a particular individual and/or shared by a group.
3. It is hierarchical, with perception of personal behavior in specific situation at the base of the hierarchy, inference about self in the broader domains (e.g., social, physical, and academic) at the middle of the hierarchy, and a global, general self-concept at the apex.

4. The hierarchical general self-concept is stable, but as one descends the hierarchy, self-concept becomes increasingly situation specific, and, as a consequence, less stable.
5. Developmentally, self-concept becomes increasingly multifaceted as the individual moves from infancy to adulthood. Infants tend not to differentiate themselves from the environment and young children have self-concepts that are global, undifferentiated, and situation specific. It is only with increasing age and the acquisition of verbal labels that self-concept becomes increasingly differentiated and integrated into a multifaceted, hierarchical construct.
6. Self-concept has both a descriptive and an evaluative aspect such that individuals may describe themselves ('I am happy') and evaluate themselves ('I do well in mathematics').
7. Self-concept can be differentiated from other constructs to which it is theoretically related. Thus, for example, academic achievement should be more highly correlated with academic self-concept than with social or physical self-concept, and self-concepts in specific school subjects should be more highly correlated with achievement in matching school subjects than achievements in other subjects.

(Shavelson, Hubner, & Stanton, 1976 p. 59).

Some evidence has been found to support the notion that these domains of self-concept, especially academic self-concept, may be more useful in explaining academic and other psychosocial outcomes (Wright & Leroux, 1997).

2.10.2 Development of Self-Concept from Childhood to Adolescence. The developmental stage of adolescence has long been thought an essential and critical stage for identity development. It is a time for self-concept formation, elaboration, and refinement, especially with regard to one's recognizing their social relationships with others. "In the transition from childhood to adolescence, individual's begin to develop more abstract characterizations of themselves, and self-concepts become more differentiated and better organized" (Harter, 1998, cited in Steinberg & Morris, 2001). Steinberg and Morris (2001) concur with this notion and elaborate as follows:

...that adolescents evaluate themselves globally and along several distinct dimensions – academics, athletics, appearance, social relations, and moral conduct – and that the link between specific dimensions of the self-concept and global self-worth varies across domains. (p.7)

There is also evidence that adolescents' self-concepts differ across social contexts, and teenagers see themselves differently when they are with peers compared with parents and teachers (Harter, 1998 cited in Steinberg & Morris, 2001, p. 7).

2.10.3 Academic Self-Concept. Simply put, "Academic self-concept involves a description and evaluation of one's perceived academic abilities" (Byrne, Hattie, & Fraser, 1986 cited in McCoach and DelSiegale, 2002). Academic self concept is theorized to consist of an element of external comparison, where students compare their performance to classmates, and internal/ipsative comparison, where students compare their own performance between various subject areas (Marsh, 1987). This is otherwise known as the internal/external frame of reference model (Marsh, 1987). Academic self-concept has been found to be a significant predictor of academic achievement (Marsh,

Chessor, Craven, & Roche, 1995; Wigfield and Karpathian, 1991 cited in McCoach & DelSiegale, 2002, p. 3), and academic achievement can also predict self-concept to a lesser degree (Guay, Marsh, & Boivin, 2003). Calculations based on statistical analysis have led to predictions that as much as one third of the variance in achievement can be accounted for by academic self-concept (Lyon, 1993 cited in McCoach & DelSiegale, 2002). In most populations, it has been found that there is a positive relationship between academic self-concept and academic achievement (McCoach & DelSiegale, 2002).

2.10.4 Self-Concept and Academic Success. Numerous studies have yielded evidence of the positive relationship between self-concept and academic success. For example, a review of more than sixty independent studies, with over 50,000 students, found empirical support for the notion of a connection between academics and self-concept (Valentine, 2002; Zanolini & Usai, 2002). There is also evidence that self-concept and achievement affect each other; that is, self-concept has a positive relationship with later achievement when prior achievement is controlled, and likewise, achievement has a larger relationship with later self-concept after prior self concept is controlled (Valentine, 2002). Given this empirically supported linkage, educators have been attempting to maximize self-concept and self-confidence to ensure maximal academic success (Mboya, 1989; Merrell, 1994 cited in DaSilva, 2002). Positive self-concept has also been shown to correlate with other desirable outcomes such as motivation (Dobson, Campbell, & Dobson, 1982, Mboya, 1989; Waxman & Huang, 1996). In summary, academic self-concept has been found to have a strong relationship with academic outcomes, but less is known about social and other sub-domains of self-concept.

2.10.5 Self-Concept and Giftedness. Findings comparing self-concepts of academically talented students to those of normally developing children are somewhat inconsistent, but they generally have shown that gifted student's self-concepts are as high, or higher, than regular students. In a meta-analysis of fifteen studies comparing gifted to regular students on global self-concept, Hoge and Renzulli (1993) found that gifted students were, on average .19 standard deviations above that of regular students¹. Studies exploring the various dimensions of self-concept have reported differences between gifted and non-gifted students by dimension though. For example, it has been found that gifted students have lower than average self-concepts in non-academic areas but higher academic self-concepts (Ablard, 1997; Reynolds, 1997; Schenkel, 2001). Other studies have found social self-concepts are higher for gifted than non-gifted students (Kelly & Colangelo, 1984), although a recent meta-analysis showed no differences (Hoge & Renzulli, 1993). A recent study of 116 junior secondary students (aged 12 to 16) in China investigated relationships between perceptions of giftedness, self-concepts (global and domain), and certain personal self-perceptions (i.e., "feeling different", "critical attitude in self performance evaluation", "expectations of high achievement from parents"). The study found that the ways students perceived their giftedness affected global self-worth and, especially, the domains related to social acceptance and friendship issues (Chan, 2002).

Wright and Leroux (1997) have found evidence that congregating gifted students is favourable to self-concept. This Canadian study of twenty-five gifted adolescents involved students completing the same measures of self-concept numerous times over a

¹ Effect size was calculated by "...subtracting the mean self-concept of scores of average children from the mean for gifted children and dividing by the standard deviation of the average group" (Hoge & Renzulli, 1993, p.452)

period of one year. Significant increases in the subscales of Romantic Appeal and Close Friendship were noted (Wright & Leroux, 1997). These authors also found that gifted students enjoyed being with their peers, despite their awareness of being labeled different from other children. Wright and Leroux concluded that “this study provides educators and administrators with new support for the benefits of congregated settings for high ability students...” (1997, p.83).

2.10.6 Academic Self-Concept of Gifted Children. Not surprisingly, evidence supports the idea that gifted students generally possess higher academic self-concepts than non-gifted students (Pyrt & Mendaglio, 1994). Gifted students tend to retain a high self-perception of academic competency even if they are not performing well in school (McCoach & DelSiegale, 2002). When gifted students are among their similarly-talented peers though, their self-evaluations of ability tend to decrease (Marsh, 1987; Marsh & Hau, 2003; Marsh, Koeller, & Baumert, 2001). Gifted students enrolled in special classes “...perceive their academic ability and chances for academic success less favorably compared to students in regular mixed-ability classes” (Zeidner & Schleyer, 1998, p.305). This effect has been termed the “The Big-Fish-Little-Pond Effect” (Marsh, 1987). The effect has been observed in large populations of students including one study of over a 1000 gifted Israeli students (Zeidner & Schleyer, 1998). Some research has shown that this affect results in heightened evaluative anxiety and results in depressed school grades (Zeidner & Schleyer, 1999a, 1999b). For this reason, Marsh (1987) has theorized that it is better for academic self-concept to be a big fish in a little pond (gifted student in a regular reference group) than to be a small fish in a big pond (gifted student in a gifted reference group; also see Marsh, Chessor, Craven, & Roche, 1995). However, for example, it has

also been postulated that the heightened self-concept for gifted students in heterogeneous settings may be detrimental in the future when these students enter highly competitive post-secondary education and find themselves competing with many similarly talented individuals (Zeidner & Schleyer, 1998). According to the conclusions in Dixon's (1998) review of the research,

One way to encourage positive self-concepts in gifted adolescents is to establish a community that meets their needs. If one feels good about the academic environment, then possibly one can grow socially and establish a comfort zone.

(p. 6)

However, the competition among peers and exceptional academic demands can detract from success in such community programs (Hoge & Renzulli, 1993). Probably the best conclusion is that a global or homogeneous measure of self-concept is insufficient because gifted students are not homogeneous. Therefore, it appears very important that "educators need to focus on individual configurations of self-concepts to provide essential services" (Dixon, 1998, p.6).

2.10.7 Demographic Differences in Self-concept of Gifted Students: Ethnicity and Gender. Differences in self-concept between minority and non-minority gifted students have also been recognized. Worrell (2002) compared the self-concept of 233 academically talented White and Asian-Americans, aged twelve to eighteen years, using questionnaires measuring global and specific domains of self-concept. Results showed that White participants obtained significantly higher scores than did Asian American participants on scholastic and vocational self-concepts, but the effect sizes were small. Domain-specific self-concepts were not a strong predictor of global self-concept for

Asian American participants, although one's perceived appearance was a strong predictor of global self-concept for White participants.

One study found that girls with extremely high IQ scores sometimes have difficulties in groups with peers of average intellectual ability (Schneider, 1987 as cited in Dixon, 1998). Harter, Waters, and Whitesell (1997) theorized that such findings may occur because, "Smarter girls may view themselves as showoffs or as too academically competitive". One cross sectional study of multidimensional self-concept comparing gifted and non-gifted girls found that global self-concept scores of gifted girls declined significantly from grade three to grade eight. This trend was much more subtle in the non-gifted students, leading to significantly lower scores in the domains of behaviour, intellectual and school status, and popularity compared to the non-gifted girls in grade eight (Klein & Zehms, 1996). Only in grade eight did gifted girls have a significantly lower perception of self in the areas of behaviour, intellectual and school status, and popularity compared to the non-gifted girls (Klein & Zehms, 1996). Hoge and McSheffrey (1991) found that among a group of gifted students who belonged to a self-contained enrichment classes in an urban area, there were no gender differences in global self-concept. However, girls had lower scores for perceived physical appearance, behavioural conduct, and self-perceived athletic competence. In this study, girls from the gifted program also had significantly higher global and academic self concept scores than documented in the general norms. Hoge and McSheffrey (1991) interpreted these results to mean that the inflation of self-concept scores over that of the established norms indicated that the specialized program may be particular beneficial for girls. However, this appears to be unreasonable as the comparison was not directly made to a norm for

gifted girls in regular classes but to the regular population. In other words, this conclusion would not be true if it was later found that girls in regular programming also tend to have higher-than-average self-concept. Generally it appears that global self-concept between gifted girls and boys is about equal, although there have been weak indications of gender differences occurring in various domains of self concept (e.g., academic, behaviour).

2.10.8 Variation in Self-concept of Gifted Students by Gender and Grade. Lewis and Knight (2000) examined the self-concept of 368 intellectually gifted children in grades four to twelve. These researchers postulated that the reason previous studies found non-significant differences as a function of gender and grade could be because only global measures of self-concept had been employed in these studies. To address this weakness, these authors used the Piers-Harris Children's Self-Concept Scale, which assesses Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction which combine to produce a global (composite) score. As hypothesized, they found no global differences. However, findings indicated that girls scored slightly higher on Behavior ($M_{girls} = 13.84$, $M_{boys} = 12.75$) and on Intellectual and School Status than boys did ($M_{girls} = 14.17$ vs $M_{boys} = 13.52$ Boys). Boys were significantly more positive in the Anxiety domain ($M_{boys} = 11.04$ vs $M_{girls} = 9.83$) than girls. With regard to age, the only significant finding was for Behaviour, whereby elementary ($M = 13.64$) and high school participants ($M = 13.83$) scored higher than junior high school students ($M = 12.77$). No interactions between the gender and age variables were observed. Lewis and Knight (2000) suggested that the findings support the use of multidimensional measures. They also suggested the use of a

different multidimensional self concept measure in order to corroborate these findings and possibly detect other domains not tapped by the Piers and Harris measure.

2.11 Factor #2: Student Life Satisfaction

2.11.1 Definition. Life satisfaction is thought to be one of three interrelated factors comprising one's subjective well-being, with the other factors consisting of negative and positive affect (Diener, 1984). Life Satisfaction has been defined as "an individual's subjective evaluation of the degree to which his or her most important needs, goals, and wishes have been fulfilled" (Frisch, Cornell, Villanueva, & Retzlaff, 1992, p.93). It is "a global evaluation by the person of his or her life" (Diener, 1994, as cited in Huebner, 2001). However, researchers have only been trying to measure this construct for a short period of time, and so few studies on life satisfaction are available. Very few are available in regard to children.

2.11.2 Measurement of Life Satisfaction. A number of instruments have been designed to assess life satisfaction in adults, with one of the most well validated measures being the Quality of Life Inventory (Frisch et al., 1992). Most studies of life satisfaction, to date, have focused on adults, (Diener, 1994; Ehrhardt, Saris, & Veenhoven, 2000; Veenhoven, 2000) especially those who are undergraduate students. (e.g., Benjamin, 1994; Benjamin & Hollings, 1997; Benjamin & Hollings, 1995; Campbell, & Dougan, 2000; Keith & Schalock, 1994; Keith, Yamamoto, Okita, & Schalock, 1995; Wells, 1998) A couple of studies that have examined life satisfaction across a wide age span found that older age groups generally had more positive life satisfaction than younger adolescents and young adults (Czaja, 1975; Morganti, Nehrke, Hulicka, & Cataldo, 1988).

With the growing interest in students' environmental perceptions, there has been an accompanying interest in the perceived life satisfaction of students and the development of measurement instruments for this purpose. This type of instrument could allow for more insight into children's actual satisfaction versus that of using various objective markers. For example, gifted students placed in a special program with increased resources and attention are thought to be in a happier more satisfying place, but this cannot be ascertained without deriving data directly from the participants. Huebner (1991), in his review of the literature on student life satisfaction measures, found only one pre-existing scale, the Perceived Life Satisfaction Scale, that examined student life satisfaction, but he found this scale lacked psychometric validity. In response, Huebner designed his own scale, the Student's Life Satisfaction Scale (SLSS; Huebner, 1991). This was a seven item scale with each item pertaining to different life domains.

From his validation studies, Huebner discovered that student's responses to the seven questions varied, seeming to indicate that students were able to evaluate their satisfaction in various domains. Recently, Huebner revised the scale with an increased number of items per domain in order to more precisely glean information pertaining to each of the areas of life satisfaction (e.g., school, family) said to "enable more focused diagnostic, prevention, and intervention efforts" (Huebner, 2001). As such, the MSLSS was designed "to (a) provide a profile of children's satisfaction with important, specific domains (e.g., school, family, friends) in their lives and, (b) assess their general overall life satisfaction" (Huebner, 2001, p.2). The MSLSS (2001 version) is now a forty item scale purporting to measure life satisfaction in six domains: Family, Friends, School, Living Environment, and Self. The scale has been adapted to a six-point answer format,

ranging from Strongly Disagree (1) to Strongly Agree (6) compared to its original 4-point format.

2.11.3 Studies. Despite a renewed emphasis on the importance of subjective factors on educational outcomes, there have been relatively few studies on life-satisfaction in school-age children. Terry and Huebner (1995), in a study with 183 children in grades three to five, found again, that parent-child relationships were more strongly associated life satisfaction than school experiences and perceptions of physical competence (Terry & Huebner, 1995). One study by Ash and Huebner (1998), compared sixty-one students (grades six to eight) in a full-time, congregated program for talented students to regularly-schooled students matched on gender a race (otherwise randomly selected) from the same grade range. Using the MSLSS as the primary measure, results showed no differences on global or domain-specific scores. Notably though, the domains of Satisfaction with Living Environment and School Satisfaction explained the most variance in global scores among the gifted students, whereas School Satisfaction explained the least amount of variance among the non-gifted students. The authors of this study interpreted this difference to mean that gifted students may derive their well-being judgments somewhat differently than nongifted students, with an emphasis on the school domain being due to having experienced a high degree of academic success. According to the authors, “Although family relationships provided a significant source of well-being for the nongifted children, the importance of the school context for the gifted sample suggests a uniquely central role for teachers and other school personnel in the lives of these children” (Ash & Huebner, 1998).

2.12 Factor #3: Student's Perceptions of Classroom Environment and Wellbeing

2.12.1 Person-Environment Psychology and Well-being. Walsh (2003) has recently written an excellent review of the literature pertaining to person-environment psychology and well-being. Recently, Walsh and colleagues have also published two volumes on the person-environment fit and its relation to satisfaction and psychological well-being. In his review, Walsh noted that J.R. Kantor (1924) was one of the earliest contributors to the psychology of person-environment interaction, introducing the notion "...that the person is a function of the environment and the environment is a function of the person" (Walsh, 2003). Shortly thereafter, Lewin conceived that the "environment is as important as the individual, and that both must be analyzed to assess and understand behavior" (Walsh, 2003). Similarly, Bandura (1977) has theorized that the qualities of a person, the behaviors generated by the person, and the environment all interact with each other (discussed in Mischel, 1993). According to Moos' social ecological perspective, the way in which a person perceives one's environment tends to influence how that person behaves in that environment (as discussed in Walsh, 2003). In other words, "the perceived social climate in which we live and work tends to have a significant impact on attitudes, behavior, and physical and psychological well-being" (Walsh, p.103). As operationalized in his measures (e.g., the Classroom Environment Scale), Moos has maintained that social environments can generally be explained in reference to four categories: relationships with others, personal growth, goal orientation, and system maintenance and change. Not surprisingly, evidence points to people being more satisfied and comfortable, less depressed and irritable, and more likely to report benefit to self-esteem in environments that are high on the human relationship dimensions (as cited in

Walsh, 2003). According to Walsh's summary, students report more satisfaction, interest, and engagement in classes high on the human relationship dimension (Walsh, 2003).

2.12.2 Studies. A large number of studies conducted in various countries support the positive relationship between favourable classroom perceptions and academic outcomes (e.g., Anderson & Walberg, 1972; Walberg, 1972a, 1972b; Walberg & Anderson, 1972; Walberg, Singh, & Rasher, 1977; Walberg, Sorenson, & Fischbach, 1972; Walberg & Thomas, 1972; Waxman & Huang, 1996). A meta-analysis incorporating data from 17, 805 students in four countries (Haertel, Walberg, & Haertel, 1981) showed that levels of cohesiveness, satisfaction, and task orientation in the classroom relate to student learning. In contrast, student learning negatively related to levels of discord and organization. Similarly, Dunn and Harris (1998) found that fourth-grade students' (sample size of 230) perceptions of their classroom environment (via the My Class Inventory) related weakly to state-mandated math, reading, and language learning scores. By far, the strongest positive relationship was between students' perceptions of difficulty in learning language arts content and outcomes in reading, writing, and oral expression (explaining 8.2 percent of achievement variance). The degree to which students enjoyed their class work (satisfaction) was the second strongest predictor (additional 1.7 percent of explained variance), whereas friction (tension and quarelling), competition, and cohesiveness played no role in measured achievement outcomes. As these findings were somewhat surprising, the authors noted that the results may relate to young students' inability to accurately rate climate, and recommendations for a replication with a larger sample and older age groups were suggested.

2.12.3 Gifted Students' Perceptions of their Learning Environment. Only a few studies have attempted to examine gifted students' perceptions of their learning environment. Moon, Swift, and Shallenberger (2002) investigated student perceptions of a self-contained class for fourth- and fifth-grade students with high to extreme levels of intellectual giftedness (i.e., IQ = 148 - 193). Dependent variables were educational, emotional, social, life outside school, and transition issues, studied through the use of observations, interviews, comparison essays, and a goal-attainment scale. Results of the study suggested that a self-contained classroom provided a challenging learning environment for highly intellectually gifted students, but the responses of individual students to this more challenging environment varied considerably, resulting in inconsistent emotional and social outcomes for students at different times (Moon, Swift, & Schallenberger, 2002).

In comparison, a study of 871 gifted elementary, middle, and high-school students in nine school districts (Gallagher, Harradine, & Coleman, 1997) involved asking participants about the amount of challenge they perceived in their programs and whether their schooling was generally meeting their needs. For the most part, students agreed that their special academically gifted classes and mathematics classes challenged them, but only about half of the students reported a similar satisfaction with their Science, Language Arts, and Social Studies classes. Students stated consistently that the curriculum's lack of challenge derived from a number of factors (i.e., slow pace, too much repetition of already mastered information, inability to move on after mastering the regular curriculum, few opportunities to study topics of personal interest, and an emphasis on the mastery of facts rather than the use of thinking skills). These results may

be taken to suggest that, although classroom climate has been found to play a relatively minor role in some student populations, it may be more pertinent to gifted student populations.

2.13 Interrelationships between the Three Factors.

2.13.1 Life Satisfaction and Self-Concept. A few studies have searched for a connection between life satisfaction and self concept (Braverman, 2003; Leung & Leung, 1992). For example, Braverman found a strong positive correlation between self-concept (as measured by the Multidimensional Self Concept Scale) and life satisfaction (as measured by the Perceived Life Satisfaction Scale) among grade-eight students. Another study, with 1156 elementary students in Hong Kong, also revealed a positive correlation between life satisfaction and global self-concept (Leung & Leung, 1992). Perceived closeness to parents was the strongest predictor of global life satisfaction in this study though. With another Chinese sample of 115 second-grade students and seventy-four eighth-grade students in Hong Kong, social self-concept was found to be a strong predictor of life-satisfaction among adolescents compared to that of grade attainment for the younger group (Chang, McBride-Chang, & Stewart, 2003). In this study, adolescents scored significantly lower in both areas than the younger students (Chang et al., 2003). Huebner (1994a) investigated the relationship between scores on his Student Life Satisfaction Scale and self-concept as measured by the Piers Harris scale. He found a relatively close relationship between self-concept and this earlier scale (Huebner, 1994).

A recent study by McCullough (2000), with a sample of 92 students in grades nine through twelve, found a moderate correlation between student life satisfaction, as measured with the SLSS, and global self-concept, as measured by the student self-

concept scale (the seven item multidimensional scale). The authors interpreted this finding to be supportive of the conceptualization of self-concept and life satisfaction as separate but related constructs comprising important aspects of well-being, with emotion, negative and positive, being a similarly correlated third factor (McCullough et al., 2000). Experience of daily and major life events was also found to be a significant factor in this study (McCullough et al., 2000). According to the authors, their finding “...underscores the importance of considering everyday events as well as major events in understanding adolescent subjective well-being” and “...that an individual’s global self-confidence is crucial to consider when predicting these positive dimensions of well-being” (McCullough et al., 2000). The authors also offered an interesting overview of clinical implications. For example, they highlighted that a particular intervention could influence one or more aspects of well-being (e.g., positive affect and life satisfaction) but not another (e.g., negative affect). As a lead into the following section incorporating environmental factors, McCullough et al, also emphasized that this study “demonstrated the importance of both environmental variables and intrapersonal variables in adolescent’s positive well-being judgements...” (McCullough et al., 2000). Given that environmental variables are theorized to play a role in subjective well-being, it makes sense to examine students’ perceptions of their educational environments as an important factor in subjective well-being.

2.13.2 Classroom environment, Self-Concept, and Life Satisfaction. Bailey (1987) was one of the first authors to systematically measure the relationship between self-concept and classroom environment and found a significant relationship between global self-concept and four subscales from the Classroom Environment Scale (CES). He

(Bailey, 1987) investigated the relationship between global self-concept, using the Piers-Harris self-concept scales, and classroom climate, with the Classroom Environment Scale. The results indicated significant relationships between global self-concept (composite score) and four subscales of the CES: (1) Involvement; (2) Affiliation; (3) Teacher Support; and (4) Order and Organization. Bailey (1987) concluded that “findings strongly suggest a relationship between children's self-concept and environmental cues or factors involved in teacher-student and student-student interactions”.

Byer (1999) examined the effect of school classroom environment on academic self-concept. The 185 middle-school participants were enrolled in American history courses, and the study had equal representation from each gender. Students' perceptions of classroom social climate were measured by the Involvement subscale and by the Affiliation subscale of the Classroom Environment Scale (Trickett & Wilkinson, 1979). Academic self-concept was measured by the Academic Self Description Questionnaire II. In a study with 185 grade-eight participants (Byer, 1999), statistically significant ($p < .05$) relationships were found between students' perceptions of classroom social climate and academic self-concept. Also, statistically significant relationships were revealed between classroom involvement and global self-concept and between classroom affiliation and global self-concept, while parental education was ruled out as a mediating factor in this relationship (Byer, 1999). In contrast, Sullivan (1998) found no evidence of a relationship between perceptions of classroom environment and academic self-concept, with 443 children in grades four through six, despite using the same measure of classroom climate as Byer (1999; i.e., the Classroom Environment Scale). However, these studies did employ different measures of academic self-concept (Academic Self Description

Questionnaire II for Byer (1999) versus the Piers-Harris Self-Concept Scale in Sullivan's 1998 study).

The literature suggests that student perceptions of their classroom environment relate to self-concept, academic achievement, student satisfaction, and academic motivation. Findings also suggest that “gifted students undergo the same developmental processes as their less able peers, but the way they handle these transformations may be quite different” (Dixon, 1998, p.1). Furthermore, recent literature on the self-concepts of gifted children suggests that a congregated environment with relatively low levels of competition may be more beneficial than a non-congregated environment (Wright & Leroux, 1997). However, this effect tends to diminish and can sometimes reverse when competition is high and when adolescents largely are making comparisons of themselves to other students within the congregated classroom (Marsh, 1987).

Zeidner and Schleyer (1998; 1999a) have completed two of the first large-scale studies comparing gifted students in a regular heterogeneous class program (with a one day per week pull-out) to students in full-time homogeneous classes using measures of affective outcomes. The study involved 1020 Israeli gifted elementary students in grades four to six. They found that students in the heterogeneous program had lower evaluative anxiety, higher academic self concept, and more positive perceptions of their giftedness (e.g., self concepts). Comparatively, students in the homogeneous group had more favorable attitudes to the school/classroom environment (school atmosphere, level of instruction, teacher-student relations, teacher characteristics) and were also more satisfied with school, in general, than those students in the mixed program. According to Zeidner and Schleyer (1999), “the trade-off between a more positive perception of the school

environment and less effective personal-social adjustment for students in special gifted classes should be given due consideration by program planners and evaluators in any cost-benefit analysis of educational programs for gifted students”.

The research that most closely resembles that of the current study was carried out by Shields in 1992 (Shields, 1995, 1996). Initially, Shields compared gifted fifth-grade students in homogeneous (ACTAL) classrooms to gifted students who chose to remain in the regular heterogeneous classrooms. This study was done in an urban Canadian school district, under the pseudonym “Prairie School District” in a city with two schools offering the program in autumn 1992². The Educational Process Questionnaire, initially employed in a Utah state educational survey, was used to measure a number of constructs:

academic self-concept, autonomy, career preparation, classroom participation, enjoyment of English and fine arts, enjoyment of school, independent development, individualization, peer relations, reading, reinforcement of self-concept, self-acceptance, and teacher expectations. Scores on the EDQ that were initially equal between the groups at the beginning of the school year showed that fifth-grade students in AcTal had higher academic self-concept, more independent development, higher self-acceptance, and better reported classmate relationships than their peers in the heterogeneous environment after 8.5 months (the academic year). AcTal students also reported that teachers more often engaged in strategies that reinforced academic self-concept. In a second study, Shields (1996) also found ACTAL students in grade five and eight to have higher scores on all aspects of the Canadian Test of Basic Skills at the end of the academic year; however, there was no more than three points separating the maximum raw scores on eight of the

² Although it is not explicitly stated, it is very likely this study was completed in the same school division that is under study here, as information on this study was received from a parent of children who had gone through the Saskatoon program.

ten achievement scales. Additionally, students in the fifth-grade homogeneous classes reported greater development of career interests, whereas students in the heterogeneous class reported greater academic self-confidence. Grade-eight students in the homogeneous class only had higher development of career interests than those in the grade-eight heterogeneous class. In regard to perceptions of their teachers, as measured by the “Teacher Expectation” part of the EDQ (i.e, academic learning time, teacher reinforcement of self-concept, teacher’s expectations, teacher feedback, amount of homework), students in the grade five homogeneous class said teachers expected more of them than those in the heterogeneous classes. Among the eighth-grade students, those in the homogeneous classes responded that they had more teacher reinforcement of self-concept, more teacher feedback, more academic learning time, and more homework. Shields summarized her research by saying that “The existing research clearly shows that some form of homogeneous grouping benefits the most able and gifted students in terms of their academic achievement , as well as their attitudes concerning themselves as learners, and regarding their school experiences” (Shields, 1996).

2.14 Rationale for the Current Study

The current study set out to compare the effects of regular school programming to that of a specialized, congregated program for gifted students (the Academically Talented Program) on factors related to well-being, in an attempt to answer the question:

“Is the psychosocial well-being of students in the Academically Talented Program of the Saskatoon Public School Division greater than that of equally talented students who opted to remain in regular school programming?”

Although the constitution of factors encompassing psychosocial well-being have not clearly been mapped, there is evidence that it is strongly associated with self-concept (e.g., McCullough et al., 2000), subjective perceptions of environment and fit (summarize in Walsh, 2003), and evaluation of life satisfaction or general happiness (McCullough et al., 2000; Ryan & Deci, 2000; Walsh, 2003). Among other possible variables relating to well-being (e.g., emotional stability), life satisfaction was chosen for investigation in this study because of its strong ties with well-being, particularly subjective well-being - the pursuit of happiness and avoidance of pain (Greenspoon & Saklofske, 1997, 1998; Saklofske & Greenspoon, 2000). Likewise, the study of multidimensional self-concept is thought to contribute useful subjective information about how positively the gifted students view themselves in their various roles. Self-concept is also thought to be closely associated, if not comprising a large part of, well-being (Drumgoole, 1981; Kim & Nesselroade, 2003; Markowitz, 1998; Terry & Huebner, 1995). Lastly, there is evidence that one's sense of fit in their psychological environment strongly relates to well-being (reviewed in Walsh, 2003). The relationship of environmental perceptions to academic outcomes has also been demonstrated with student groups (e.g., Anderson & Walberg, 1972; Walberg, 1972a, 1972b; Walberg & Anderson, 1972; Walberg et al., 1977; Walberg et al., 1972; Walberg & Thomas, 1972; Waxman & Huang, 1996). Being that this study is largely concerned with the differential impact of learning environments (i.e., AcTal versus regular programming) on psychosocial well-being, comparisons of classroom environment were considered to be of central importance. The main objective of this study was to determine whether there are group differences (advantage/disadvantages) for students on these three factors (multidimensional self-

concept, life satisfaction, and classroom environment), and secondly, to examine some of the interrelationships of these factors as they pertain to the students in each of the programs. It was generally hypothesized that participation in a specialized, congregated program for gifted students would lead to stronger and more positive scores as a result of the benefits said to be accrued to students in the AcTal program.

2.15 Research Questions and Hypotheses

As noted in the preceding section, the main overarching research question in this study pertaining to the psychosocial well-being of students could not be answered directly, or with a singular measure, due the relative breadth, depth, and lack of specification of this construct. Direct and overarching measures of well-being in adults are in early stages of development, and such all-encompassing measures are not yet available for children and adolescents. Therefore, this research was approached through asking the theoretically-derived and subsuming research questions stated below.

2.15.1 Question #1: *Self-concept.* Do students in the AcTal program have more positive global and domain self concepts (i.e., social, competence, affect, academic, family, physical) than the students who met criteria for the program but chose not to participate, as measured by the Multidimensional Self Concept Scale? It is hypothesized that the social and psychological benefits said to be related to participation in a homogeneous setting would lead to higher than normal self-concept scores only for students in the AcTal program. The only expected exception was to be in the area of academic self concept, where gifted students in homogeneous programming have been

commonly found to have lower academic self-concept than their peers in the regular programming environment (Marsh & Hau, 2003).

2.15.2 Question #2: *Life satisfaction.* Do Actal students report greater life satisfaction than gifted students who are not participating in the AcTal program? That is, do students in the AcTal program appear to be satisfied with themselves in their social relationships with peers, teachers, family, and self compared to matched academically-talented students who are not participating in the program, as measured by the composite and the dimensional scores of the Multidimensional Students' Life Satisfaction Scale. Do students in both programs exceed scores for that found in the general population (i.e., normative data)? It was expected that the more mutually supportive and collegial environment of the AcTal program would lead to slightly higher-than-normal life satisfaction in all domains, whereas it was expected that gifted students in the regular program would not exceed levels of satisfaction generally found in the general population.

2.15.3 Question #3: *Classroom environment.* Do students in the Academically Talented Program perceive the social and learning climate of their congregated program more favourably than students in the regular program? Given that the latest review of the AcTal program states that parents and teachers believe that students gain a sense of belonging and satisfaction of being in a class with similar others (Schwean, 2003), it was expected that students in the Actal program should perceive their social and learning environment more positively than that of gifted students in the regular educational program. Furthermore, it was expected that the theoretically better suited environment

would lead to scores exceeding the norms only for students in the Academically Talented Program.

2.15.4 Question #4: Mediation of Gender and/or Grade. Do Gender and/or Grade Mediate Group Differences? Are gifted students within the AcTal program more likely to show positive improvement in self-concept, life satisfaction, and perceptions of the classroom environment as a function of grade level compared to students in the regular classroom? It was hypothesized that if the AcTal program is beneficial to gifted students on the variables measured, students in the AcTal program should show gains in self-concept and life-satisfaction over the years they were enrolled in the program. In contrast, such gains were not expected for students placed within the regular classroom.

The specialized program could have a differential effect on one gender compared to the other, although it was difficult to make a reasonable prediction as to what may be expected. From the weak collection of research, there appears to be some reason to believe that girls in AcTal may build a stronger academic self concept (i.e., over time or grade) compared to gifted girls in regular programming where academic capacity in girls has been found to be less supported by peers (Harter, Waters, & Whitesell, 1997), thereby tending to inhibit positive responses on measures of academic self concept.

2.15.5 Question #5: Comparison to the Normative (non-gifted) Population. How Do Mean Scores for the Groups Compare to the Norms established for the general population? Comparisons of the gifted groups in this study to the general population (i.e. test norms) were thought to be important to establish a more qualitative and relative description of any differences found between the programming groups. For example, a finding that AcTal students generally score higher than the norms (i.e., general

population) compared to those in the regular program, who may be in the average range, could be considered more salient than a finding that both groups are in the “average” range despite group differences. Although this question was largely exploratory, it was expected that students in the regular program may be hovering in the lower average range, possibly due to not having their academic and social needs fully met, whereas students with the benefits accrued to them from their participation in the AcTal program were expected to be in the high-average range.

2.15.6 Question #6: Consistency of Construct Interrelationships. What is the relationship between classroom environment, self-concept, and life satisfaction for each of the educational groups? Is there a relationship between learning environment, self concept, and student life satisfaction that is consistent between educational programs? If such a relationship exists, is it of the same strength and polarity (i.e., positive or negative) for both programming groups. This is largely an exploratory question, although the literature suggests that all constructs in this study should interrelate moderately as separate components of psychosocial wellbeing. The research findings signify a significant relationship between self-concept (especially academic self-concept) and life-satisfaction, so a strong covariance between these factors was expected. As for the third factor of classroom environment, it was expected that perceptions of the school environment would be positively related to life satisfaction and self-concept. It was hypothesized that both groups would produce the same positive interrelationships between the three variables (i.e., that positive scores on one variable would generally associate with positive scores on the other two variables). However, the strength of

relationship could be diminished in the AcTal group due to there being more homogeneity among students.

3 METHODOLOGY AND PROCEDURE

3.1 Methodology

This was a quantitative study comparing group responses on three self-report measures related to psychosocial adjustment and well-being of gifted students. As shown in Table 3.1, self-concept was measured by the Multidimensional Self Concept scale (MSCS), life satisfaction was measured by the Multidimensional Student Life-Satisfaction scale, and the Classroom Environment Scale (CES) was used to measure student's perceptions of their classroom dynamics. Mean questionnaire scores from the specialized, congregated programming group (AcTal) were compared to mean scores of the regular programming group and subsequently compared to the normative data.

Table 3.1. Constructs and Measures Used to Assess Constructs

Construct	Measure
Demographics (Age, Grade, Gender)	Questions attached to consent form.
Classroom Perceptions and Class Perceptions	Classroom Environment Scale (CES; Tricket and Moos, 1987)
Life Satisfaction/Feelings and Thoughts of Wellbeing as Students	Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner, 2001)
Self Concepts (Affect, Social, Physical, Competence, Academic, Family, Global)	Multidimensional Self Concept Scale (MSLS; Bracken, 1992)

3.2 Participants

Participants for the current study were elementary students (grades five to eight) in the Saskatoon Public School Division. All of the students in this study had passed the screening procedures for entrance into the AcTal program. The screening procedures consisted of a teacher-completed questionnaire which incorporated information based on Renzulli's Three Ring Conception of Giftedness and the student's results from the routinely-administered Canadian Achievement Test – 3rd Edition and the Canadian Test

of Cognitive Skills (TCS; see “the Admission Screening Form for the AcTal Program in Appendix E). Students whose measured level of achievement was discrepant with aptitude scores completed additional individual testing to ascertain if they had the requisite level of intellectual ability for the program (i.e., composite scores at or above the 98th percentile). The individual tests used for this purpose were the *Stanford-Binet Intelligence Scale: Fourth Edition* (Thorndike, Hagen, and Sattler, 1986), or the *Wechsler Intelligence Scale for Children: Third Edition* (Wechsler, 1991). These measures provided assurance that equally capable students were being compared in this study, as all students had met the designated criteria.

3.3 Method for Gaining Consent

Representatives at the school division office (i.e., Deputy Director, Karen Anderson and coordinator of pupil services, Kim Swan) were consulted regarding the contents of the research proposal. After they granted permission to proceed with the study, additional approval was gained from the two principals of the schools providing the specialized AcTal programming.

3.3.1 AcTal Program Participants. Next, the researchers (myself and Leslie Widdifield-Konkin) met with the AcTal teachers to introduce the studies and data collection procedures. These teachers agreed to briefly introduce the studies to their classes and to pass the information and consent packages onto them. All students who were currently participating in the specialized homogenous program had an opportunity to participate in this study. Consent forms were signed by parents and students and returned to school. On the day of data collection, consenting participants took class time to complete the questionnaires, while those who did not consent were asked to quietly

read. To accommodate students who had missed the initial day of data collection, subsequent visits to the AcTal schools were made and students briefly left their classes to complete the questionnaires.

3.3.2 Regular Program Participants. Clerical staff at the school division office sent information and consent forms to all known students who had been selected for, but who had declined participation in, the AcTal program. Self-addressed envelopes containing the consent forms were returned to the division staff. These clerical staff passed on the names and contact information of consenting participants to the researchers. The researchers then made appointments to arrange for individual data collection by contacting the principals of schools that the consenting participants were attending. With each principal's permission, arrangements were made with the participant's teachers to arrange individual data-collection times.

The names of grade-eight students who had declined participation in AcTal were not available from the school-division office so students were recruited by word-of-mouth. Principals of the schools that were already being visited were asked to pass on information and consent forms to students in grade eight who had declined participation in AcTal. Interested grade eight students then mailed back this information to the researchers, and appointments were made with teachers to collect data from the consenting students. Data was collected in the months of February to April, 2004.

3.4 Data Collection

At the time of data collection, the researchers reminded participants of the voluntary nature of the study. Next, the students were given a brief overview of expectations (e.g., do not share responses and work alone), followed by an introduction

and instructions on completing the first questionnaire, the MSLSS. Nearing completion of the MSLSS, they were introduced to the MSCS and then the CES. It generally required fifteen minutes to complete each of the questionnaires.

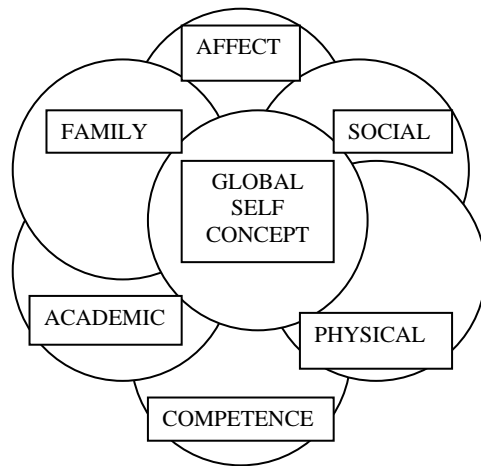
3.5 Measures

The measures for this study were selected on the basis of their strong psychometric properties and ability to provide information on the constructs of interest. They were also selected for efficiency and convenience of use. Due to the large number of potential respondents in this study, self-report measures that could be efficiently completed, analyzed, and scored were chosen. It was decided that other methods, such as standardized interviews, would be much more time consuming and possibly less objective.

3.5.1 Multidimensional Self Concept Scale. The Multidimensional Self Concept Scale (MSCS; Bracken, 1992) is a multi-domain measure of self-concept designed for research, screening, and diagnostic work. This inventory consists of 150 Likert-style items, belonging to six subscales (domains) of self-concept (Social, Competence, Affect, Academic, Family, and Physical) that combine to produce a score for global self concept. According to Bracken (1992), “self concept” (a non-hyphenated behavioural construct according to Bracken) “represents individuals’ learned evaluations of themselves based upon their successes and failures, reinforcement histories, and the ways others react to them and interact with them” (Bracken, 1992). Bracken’s conception of self concept consists of six overlapping domains of self concept. That is, the multiple dimensions that constitute self concept are moderately inter-correlated where it is assumed each domain

contributes equally to global self concept (p.5). Bracken's conception of self-concept is illustrated in Figure 3.1 below, with each domain described in Table 3.1.

Figure 3.1. Depiction of Bracken's Conceptualization of Multidimensional Self Concept



Adapted from Bracken (1992). Multidimensional Self Concept Scale: Examiner's Manual

Table 3.2 Description of MSCS Subscales

Subscale	Description
Social	“Children’s social self concepts are affected by the reactions of other people, the extent to which the children are approached in positive ways, and their ability to achieve their goals and objectives through successful social interactions” (p.4).
Competence	As children succeed or fail in their attempts to solve problems, attain goals, bring about desired outcomes, and function effectively, they evaluate their actions, other’s reactions, and make generalizations about their competence in various settings.
Affect	“Children’s affective (emotional) reactions differ as their previous behaviours are differentially reinforced, extinguished, and punished, or as they react to personal and environmental evaluations of their behaviour” with patterns becoming more consistent, even rigid, with age.
Academic	“In the academic context, the child evaluates her actual achievement, as well as her functioning and experiences in all other school-related situations”.
Family	“The family unit, for most children, constitutes the context within which they have interacted for the longest period of time. “ It represents, “those individuals upon whom the child is dependent for care, security, and nurturance.

Table adapted from the Multidimensional Self Concept Scale (Bracken, 1992). Austin Texax :Pro-Ed, Inc.

3.5.2 Reliability and Validity of the MSCS. The norming sample for the Multidimensional Self Concept Scale consisted of 2501 students ranging from grade five to twelve, with near equal numbers of girls and boys. The reliability coefficients for the MSCS are strong, with alpha coefficients ranging from .87 to .98 for composite scores. There was also a high level of consistency across school grades and gender, and test-retest stability coefficients ranged from .73 to .81. Validity for the test was built in through correlating MSCS data from sixty-five participants with the Coopersmith self-esteem inventory (i.e, a related, but different construct from self-concept) resulting in a very fitting .73 coefficient. The correlation was .85 with the only other commonly-used

multidimensional measure of self-concept (Piers-Harris scale). Many other subsequent studies have supported the validity of this instrument (Delugach, Bracken, Bracken, & Schicke, 1992; Garcia-Gomez, 2001; Jones, 1998; Reeder, 1998; Rotatori, 1994; Wilson, 1998; Young, 2002).

To date, the MSCS has been used in a few studies with gifted students (Ablard, 1997; Reynolds, 1997; Schenkel, 2001). The study by Ablard (1997) found that 174 American gifted students in grade eight had significantly higher academic self-concepts than normally-developing peers, whereas social self concepts were well within the normative range. The other two studies are theses not published in journals and, as a result, data was not available for review.

3.5.3 Multidimensional Student Life Satisfaction Scale. The Multidimensional Student Life Satisfaction Scale is a 40-item self-report questionnaire “designed to provide a multidimensional profile of children’s life satisfaction judgements” (Huebner, 1994b, p.2). It is framed to fit within a multidimensional conceptualization of health (i.e., physical, mental, and social well-being; World Health Organization, 1964), and as such, is based on “positive indicators”. Life satisfaction is defined as a “global evaluation by the person of his or her life” (Pavot, Diener, Colvin, & Sandvik, 1991 cited in Huebner, 2001). According to the author, “The MSLSS was designed to provide a multidimensional profile of children’s life satisfaction judgments” in the domains of School, Family, Friends, Living Environment and Self (Similar to Self-concept). An overall life satisfaction score is also available through calculating the mean of the domain scores. Table 3.3 below shows the items belonging to the various domains of the MSLSS.

Table 3.3. Grouping of Items for Each Domain of the Multidimensional Life Satisfaction Scale

Family

I enjoy being at home with my family.
My family gets along well together.
I like spending time with my parents.
My parents and I do fun things together.
My family is better than most.
Members in my family talk nicely to one another.
My parents treat me fairly.

Friends

My friends treat me well.
My friends are nice to me.
I wish I had different friends.*
My friends are mean to me.*
My friends are great.
I have a bad time with my friends.
I have a lot of fun with my friends.
I have enough friends.
My friends will help me if I need it.

Self

I think I am good looking.
I am fun to be around.
I am a nice person.
Most people like me.
There are lots of things I can do well.
I like to try new things.
I like myself.

School

I look forward to going to school.
I like being in school.
School is interesting.
I wish I didn't have to go to school.*
There are many things about school I don't like.*
I enjoy school activities.
I learn a lot at school.
I feel bad at school.*

Living Environment

I like where I live.
I wish there were different people in my neighborhood.*
I wish I lived in a different house.*
I wish I lived somewhere else.*
I like my neighborhood.
I like my neighbors.
This town is filled with mean people.*
My family's house is nice.
There are a lot of fun things to do where I live.

Information for this table was adapted from the *Manual for the Multidimensional Student's Life Satisfaction Scale* (Huebner, 2001).

3.5.4 Reliability and Validity of the MSLSS. The recently developed Multidimensional Student Life Satisfaction Scale shows promise in its psychometric soundness and its applicability to the study of children and adolescents (Gilman & Huebner, 2000; Greenspoon & Saklofske, 1997, 1998; Griffin, 2000; Huebner, 1994b, 1998; Huebner, Brantley, Nagle, & Valois, 2002; Saklofske & Greenspoon, 2000). To

date, significant support has been built for the psychometric soundness of this test. In the first validation study, the then 70-item MSLSS was administered to 312 elementary school students in grades three through eight. Resulting statistical analysis yielded five factors and the internal consistency alpha for the overall test was .92, with a range from .82 to .85 in each of the five domains. From these results, thirty items were eliminated due to having factor loadings less than .30. The reading level was declared to be at 1.5 according to the Flesch-Kincaid readability formula (Rightsoft Inc., 1987 cited in Huebner, 2001). The forty-item scale was then re-administered to 413 students in grades three through five. Internal consistency and factor loadings were replicated. Support for construct validity was built through showing adequate convergent and divergent validity via comparisons to other established and related questionnaires. Greenspoon and Saklofske (1997) checked the applicability of the scale to Canadian elementary students by administering the scale to 314 students in grades 3 to 8 at Western Canadian Schools. Again, the five-factor structure was replicated, and items comprising these factors were found to have high internal consistency (Alpha = .90 overall, with four subscale factors ranging from .82 to .83, although a .72 factor was derived in the Self category). Support for the cross-cultural application and validity of this instrument have also been gained through successful studies in Korea (Park, 2000) and Spain (Casas et al., 2000).

3.5.5 Classroom Environment Scale. The Classroom Environment Scale (CES) was developed by Moos and Trickett in 1974, and revised, resulting in a second edition, in 1987. The CES was designed to assess the social climate (i.e., teacher-student and student-student relationships along with organizational structure) of junior high and high-school classrooms. The CES was developed using the theory of environmental press that

postulates that groups within an environment will perceive the environment in consistent ways, and resultantly “press” members to behave consistent with that environment (Saudargas, 1989). This measure has demonstrated clinical utility for program evaluation, and for clinical contexts, where it “can be used to describe and compare classroom environments, contrast teacher and student perceptions, and examine actual and preferred classroom settings” (Moos & Trickett, 1987, p.21). This instrument was designed to measure perception in three main areas: Relationships (comprised of the Involvement, Affiliation, and Teacher Support Subscales), Personal Growth/Goal Orientation (Affiliation and Competition subscales), and System Maintenance and Change (comprised of the Order and Organization, Rule Clarity, Teacher Control, and Innovation Subscales). There were three available questionnaire forms, each consisting of ninety items, that could be used with the CES to assess general expectations (“Expected”), ideal classroom expectations (“Idea”), and current perceptions/observations (“The Real” form). The Real form was chosen as the most suitable measure for this study, as the main interest was in comparing current perceptions. Notably, the CES does not yield a global composite score. Although the CES has been designed for older groups (i.e., junior high) it has been used successfully with a younger population (DaSilva, 2002), and it was found to be the only available measure suitable for the developmentally diverse and intellectually adept population of concern in this study. Table 3.4, below, provides a detailed mapping of the various constructs tapped by the CES.

Table 3.4. Dimensions and Subscales of the Classroom Environment Scale (CES)

Dimensions & Subscales	Description
<u>Relationship Dimensions</u>	
Involvement	The extent to which students are attentive and interested in class activities, participate in discussions, and do additional work on their own
Affiliation	The level of friendship students feel for each other, as expressed by getting to know each other, helping each other with homework, and enjoying working together
Teacher Support	The amount of help and friendship the teacher manifests toward students; how much the teacher talks openly with students, trusts them, and is interested in their ideas
<u>Personal Growth/Goal Orientation Dimensions</u>	
Task Orientation	The amount of emphasis on completing planned activities and staying on the subject matter
Competition	How much students compete with each other for grades and recognition and how hard it is to achieve good grades
<u>System Maintenance and Change Dimensions</u>	
Order and Organization	The emphasis on students behaving in an orderly and polite manner and on the overall organization of assignments and classroom activities
Rule Clarity	The emphasis on establishing and following a clear set of rules and on students knowing what the consequences will be if they do not follow them; the extent to which the teacher is consistent in dealing with students who break rules
Teacher Control	How strict the teacher is in enforcing the rules, the severity of punishment for rule infractions, and how much students get into trouble in the class
Innovation	How much students contribute to planning classroom activities, and the extent to which the teacher uses new techniques and encourages creative thinking

Note: Adapted from the Classroom Environment Scale (2nd ed., p.2) by Moos and Trickett (1987), Palo Alto, CA: Consulting Psychologists Press.

3.5.6 Reliability and Validity of the CES. Published test reviews have generally been favourable, although a main criticism pointed out is the few persons in the norming sample who were of junior-high age (Saudargas, 1989; Smith, 1989). Norms for the CES were derived from 465 students: 218 from general high schools, ninety-seven from vocational high schools, forty from alternative and private high schools, and twenty-seven from junior high schools. The original standardization data yielded estimates of internal consistency for the various subscales ranging from .67 to .86 with secondary school children and with test-retest reliabilities ranging from .72. to .90 (Moos & Trickett, 1987). Subsequent studies have provided further evidence for the psychometric properties of the instrument (Fisher & Fraser, 1983; Langenbach & Aagaard, 1990; Trickett, Leone, Fink, & Braaten, 1993; Trickett & Quinlan, 1979; Trickett & Wilkinson, 1979). Notably, the Fisher and Fraser study of 1983, which involved 2,175 Australian junior-high science students in 112 classes, largely replicated the findings for the secondary school students.

The CES has also shown evidence of utility and validity in a number of samples of elementary-aged students in the United States. For example, 443 American students in grade three through eight in twenty schools in a sub-urban school district completed the questionnaire in 1998 (Sullivan, 1998). Another study successfully used the questionnaire with 185 eighth-grade students in the state of Mississippi (Byer, 1999). A study using the CES with 1100 Israeli 3rd to 8th graders also has lent support to its multicultural validity (Shechtman, 1997). It has also been successfully employed in Canadian studies (e.g., DaSilva, 2002; Nelson, 1984) and with gifted students (Garnier, 1997). Unfortunately, psychometric data from Garnier's (1997) dissertation was not available for review.

The three factor dimensions of the CES have been verified in, at least, three studies (Hughes, 1984; Keyser & Barling, 1981; Moyano-Diaz, 1983 as cited in Moos & Trickett, 1987). At least one study has reported four factors (Wright and Cowen, 1982 as cited in Moos & Trickett, 1987) and another reported five factors (Humphrey, 1984 as cited in Moos & Trickett, 1987).

3.6 Data Analysis

The data analysis involved calculating mean scores for each of the scales used and statistically comparing the specialized and regular programming students on these mean scores. Analyses also explored the possible mediation of gender and student grade on group differences. Initially, a Multiple Analysis of Variance was done to address the first four research questions pertaining directly to group differences on the three measures, including an analysis of the effects of age and gender. A 2 (Program: Actal vs Non-Actal) X 2 (Gender: Males vs Female) X 4 (School Grade Level: 5, 6, 7, 8) multiple analysis of variance (MANOVA) was used to analyze the twenty dependent variables comprising the subtest scores from the three surveys completed by students (i.e., Multi-Dimensional Self-Concept Scale, the Multi-Dimensional Students' Life Satisfaction Scale, and the Classroom Environment Scale (CES).

The same structure of MANOVA (2 X 2 X 4) was used to separately analyze the composite scores for the MSCS and the Life Satisfaction scores. This was done because dependent variables which are directly the result of the effect of other variables (i.e., composite scores are directly the result of domain scores) should not be included together in a MANOVA due to the obvious overlaps in variance. If composite scores are included with comprising subtest scores, it is difficult to discern the separate contributions of the

subtest scores. Dependent variables in a MANOVA must not be linearly connected (George & Mallery, 2001).

Next, Hotelling's T^2 (special MANOVA for comparing two groups similar to a t-test) was used to examine if there were statistical deviations from the test norms and weighted means of the MSLSS for each of the groups. Finally, Pearson Correlations were computed to examine interrelationships between scores for each of the measures used and for each of the educational groups to ascertain that the pattern of relationships between the variables was the same for each group.

4 RESULTS

4.1 Review of Study Purpose

The main objective of the current study was to compare students who are gifted and involved in a specialized congregated gifted program (AcTal) to those students, from the same school division, who were participating in regular academic programming on variables related to well-being and psychosocial adjustment. This was done to determine if the specialized program was providing psychosocial benefits to students. The specific variables examined were as follows: self concept, as measured with the Multidimensional Self Concept Scale, perceptions of classroom environment, measured by the Classroom Environment Scale, and student life satisfaction, as measured with the Multidimensional Student Life Satisfaction Scale.

4.2 Population Sample

For the congregated programming sample, 165 of 208 eligible participants participated in the study for an overall participation rate of 79 percent. Forty-nine of 95 eligible regular programming gifted students, in grades five, six, and seven, agreed to participate yielding a participation rate of 60 percent. Ten grade-eight students were recruited through word of mouth, but participation rates could not be determined due to the unavailability of data on the number of grade-eights who opted not to participate in AcTal. There were nearly equal numbers of representing each gender for those in the specialized AcTal program ($n_{\text{males}} = 82$, $n_{\text{females}} = 83$), although there was a slight difference in representation from each gender for the group of students in regular programming with more boys participating ($n = 30$) than girls ($n = 19$). All participants in

the study ranged from ten to fifteen years old. The breakdown of the participation rate for each grade for each of the academic programs is shown in table 4.1.

Table 4.1. Participation Rates by Grade and Program (e.g., 15 of 28 eligible participants in Grade 5 of the congregated program participated in this study).

Grade	Regular	Congregated
Grade 5	15 of 28 = 54%	37/44 = 84%
Grade 6	8 of 28 = 29%	50/60 = 83%
Grade 7	16 of 26 = 62%	41/52 = 79%
Grade 8	10 of ~27 (unknown) = ~ 37%	37/53 = 70%
Total	49 of ~ 109 = 45%	165/209 = 79%

4.3 Missing Data

Five of the 214 cases, one male in each of AcTal Grade five, six, and seven and two females in Grade 7, who were in heterogeneous classes, were excluded from the MANOVAs due to missing responses in the data set (automatically excluded by SPSS). Three of these cases involved decisions not to respond to numerous questions, and two of these cases were presumably due to not recognizing questions that remained on the flip side of a page. For the correlations, cases that had data missing for a specific variable could not be included in the analysis for that variable, but all cases contributed data to the correlational analysis (i.e., all 214 cases contributed data to the correlational analysis).

4.4 Outliers.

There were three students belonging to the AcTal group whose scores were extremely low, exceeding three standard deviations below the normative test means for the Multidimensional Self Concept Scale and the Multidimensional Life Satisfaction Scale and far below the lowest scores seen for the regular-programming group. As these three participants belong to the group and population studied, their scores have been

included in the reports above, although the subsequent analysis with these three cases removed is available for observation in Appendix G.

4.5 Results for questions #1 to #4: Comparing Scores between AcTal and Regular Programming, and Effects of Age and Gender

4.5.1. MANOVA Assumptions. The MANOVA statistical assumptions were generally not met in this study. That is, Box's Test of Equality of Covariance Matrices was significant at .000 for the subscale scores, indicating significant variation in the covariance matrices between groups (i.e., violation of homoscedasticity). Unfortunately, "When sample sizes are unequal [sic, as in the current study], tests of group differences (Wilks, Hotelling, Pillai-Bartlett, GCR) are not robust when this assumption is violated" (Garson, 2003). A violation of Bartlett's M results in loss of power and either an inflated or deflated type-I error rate. For the composite scores of the MSCS and the MSLSS, Box's M was .009. Due to the high sensitivity of Box's M, some authors suggest that the $p = .001$ should be considered as the acceptable level of significance for this test (Garson, 2003). In this latter case, the composite scores can cautiously be considered to have past this test and so the MANOVA statistics can be considered valid. Additionally, Levene's Test of Equality of Error Variances (i.e., $p < .05$) failed for eight of the twenty subscale variables assessed (MSCS: Family; MSLSS: Family; MSLSS: Self; CES: Affiliation; CES: Teacher Support, CES: Task Orientation, CES: Order and Organization; and, CES: Rule Clarity). There were no such violations for the composite scores on the Multidimensional Self Concept Scale ($p = .228$) or the Multidimensional Life Satisfaction Scale ($p = .218$). It was initially thought that the unequal sample size between the groups in this study may have been a primary source of the violation of

assumptions in this study; however, the study by Widdifield-Konkin (2004), with the same sample of students, did not violate these assumptions so the reason for this occurrence remains unknown.

It was decided that since the sample size was large and F-values did not exceed 3.33 for the violations, that it was acceptable to use the MANOVA results with a conservative $p < .01$ as the requisite value for determining statistical significance. It is quite unusual to have a sample size that exceeds seventy percent of the population and so even a weak statistic was considered acceptable for making inferences (comparatively, a 100% sample would not require any statistical inference). Pillai's trace was also chosen as the multivariate test statistic since it is said to be the most robust in the face of unmet assumptions (Norusis, 1994).

4.5.2. MANOVA #1: Composite Scores. The 2 (Program: Actal vs Non-Actal) X 2 (Gender: Males vs Female) X 4 (School Grade Level: 5, 6, 7, 8) multiple analysis of variance (MANOVA) for the composite scores of the MSCS and the MSLSS was not significant. That is, the MSLSS and MSCS composite scores did not differ significantly by educational program (Pillai's Trace = .039, $F(2, 193) = 3.94$, $p = .021$), by gender (Pillai's Trace = .026, $F(2, 193) = 2.54$, $p = .082$), or by Grade (Pillai's Trace = .03, $F(6, 388) = .382$, $p = .890$); neither were there any significant interaction effects.

4.5.3 MANOVA #2: Subscale Scores. The same structure of MANOVA (2 X 2 X 4) for the twenty subscale scores from the three surveys was statistically significant. With all the subscale scores entered together (i.e., not including composites), the multivariate test results yielded an overall main effect for educational program (Pillai's Trace = .222, $F(20, 174) = 2.58$, $p = .001$), which accounted for 22% of the variance in scores on the

dependent variables ($\eta^2 = .222$), and for Gender ($\text{Pillai's Trace} = .205$, $F(20, 174) = 2.24$, $p = .004$), which accounted for 21% ($\eta^2 = .205$) of variation in the subtest dependent variables. However, Grade ($\text{Pillai's Trace} = .328$, $F(60, 528) = 1.08$, $p = .248$) was not found to be a statistically significant factor, and no significant interaction effects were revealed (i.e., Grade by Program - $\text{Pillai's Trace} = .300$, $F(60, 528) = .978$, $p = .526$; Gender by Program = $.879$, $F(20, 174) = 1.15$, $p = .304$; Gender by Grade = $\text{Pillai's Trace} = .336$, $F(60, 528) = 1.11$, $p = .272$; Gender by Program by Grade – $\text{Pillai's Trace} = .202$, $F(60, 528) = .635$, $p = .985$).

Given the statistically significant multivariate effect for the subtest variables, subsequent univariate analysis (ANOVA) showed that differences by educational program were significant for four of the twenty dependent variables examined - MSCS Academic; MSCS Competence; MSCS Self; and, CES Motivation. Gender also produced a significant main effect for four other variables (MSLSS Friends; MSLSS School; CES Affiliation; and, CES Teacher Support). Since only the possible mediating (i.e., interaction affects) due to gender were of focal interest for this study, a short summary of findings for gender is presented in Appendix B and not included here.

4.5.4 Results for Question #1: Group differences on the Multidimensional Self Concept Scale. Participants in regular academic programming scored higher than those in specialized programming on the Academic subscale of the Multidimensional Self Concept Scale. The students in the regular programming had mean scores of 111.1 ($SD = 11.59$) compared to a mean of 104.1 ($SD = 14.94$) for the students in specialized programming ($F(1, 207) = 10.82$, $p = .001$), yielding a difference of seven points [.47 normed SDs]. Educational program differences explained 5% of the variance in

Academic self concept scores ($Eta^2 = .053$). The data for the MSCS for both groups has been summarized below in Table 4.2.

Table 4.2. Comparison of Actal Program (n = 163), Regular Program (n = 46), and Normative Sample (Mean = 100, SD = 15) on the MSCS.

	Regular		AcTal	
	Mean	SD	Mean	SD
Social	106.0	13.27	101.1	17.15
Competence	106.0	12.30	99.9	17.08
Affect	108.5 ^{††}	11.35	103.7 ^{††}	17.02
Academic**	111.1 ^{††}	11.59	104.1 ^{††}	14.94
Family	105.1	11.48	103.4	15.05
Physical	104.3	10.04	99.7	15.79
GLOBAL	108.7	11.25	102.3	16.87

** Difference between programs, $P < .01$

^{††} Different from norm, $P < .01$

4.5.5 Results for Question #2: Programming Group Differences on the Multidimensional Student Life Satisfaction Scale. The only difference for the MSLSS was for the Self subscale. Students in the congregated program scored lower on the Self [$F(1) = 7.15, p = .008$], with a mean score of 4.72 compared to the mean score of 5.07 for the regular group, a .42 standard deviation difference between groups. The group difference explained 3.6 percent ($ETA^2 = .036$) of score variation in the Self scale. Both mean scores were well within the designated “moderate” range for this six-point Likert metric. Table 4.3 below contains a listing of all the subscale means and standard deviations for each of the regular and congregated programming groups, along with a list of the calculated weighted means from previous studies based on a sample of 1452 participants.

Table 4.3. Comparison of AcTal Program, Regular Program, and Weighted Mean (combined results from five studies) on the MSLSS.

	Regular (n = 46)		AcTal (n = 163)		Weighted Means (N=1452)	
	Mean	SD	Mean	SD	Mean	SD
MSLSS: Family	5.10	.556	4.79	.975	4.72	.97
MSLSS: Friends	5.43 ^{††}	.599	5.33 ^{††}	.840	5.04	.83
MSLSS: School	4.44	.987	4.37	1.043	4.19	1.02
MSLSS: Living	4.99 ^{††}	.863	4.88 ^{††}	.876	4.68	.95
MSLSS: Self**	5.07 ^{††}	.440	4.72	.830	4.88	.83
MSLSS: Total	5.01	.473	4.82	.701	4.70	.83

** Difference between programs, $p < .01$

†† Different from weighted mean, $p < .01$

4.5.6 Results for Question #3: Group Differences on the Classroom

Environment Scale. As shown in Table 4.4 below, AcTal students achieved higher mean scores for Innovation than those in the regular program, ($F(1) = 13.9, p = .000$, $M_{\text{specialized}} = 54.81, M_{\text{regular}} = 49.74$)³. The size and magnitude of this difference was 5.1 points (.51 normative standard deviations), with the programming groups found to explain 6.7 percent ($Eta^2 = .067$) of the variation in scores on the Innovation subscale.

³ Note: There is no composite or combined score for the Classroom Environment Scale.

Table 4.4 Comparison of AcTal Program, Regular Program Participants (N=209), and Normative Sample (Mean = 50, SD = 10).

	Regular		AcTal	
Subscale	Mean	SD	Mean	SD
Involvement	53.09	8.599	55.10	8.090
Affiliation	52.81 ^{††}	7.598	53.59 ^{††}	6.202
Teacher Support	50.11	9.358	50.83	9.099
Task Orientation	51.28	7.740	50.93	6.282
Competition	57.34 ^{††}	7.290	55.06 ^{††}	8.984
Order & Organization	46.66	10.443	45.27	8.378
Rule Clarity	55.91 ^{††}	8.617	52.70 ^{††}	8.658
Teacher Control	58.40 ^{††}	7.030	55.83 ^{††}	7.738
Innovation**	49.74	8.440	54.81 ^{††}	7.927

Difference between programs, $p < .01$

^{††}Different from norm, $p < .01$

4.5.7 Results for Question #4: Mediating Effects of Grade and Gender. As noted above, there were no statistically significant interaction effects found in this study, and so there was no mediating effect of gender or grade.

4.6 Results for Question #5: Group Comparisons to norms.

4.6.1 Hotelling's T^2 Multivariate Statistic. Another multivariate technique was used to compare group mean scores to the normative means. The mean scores from each of the educational programming groups were compared to mean standard scores of the MSCS ($M = 100$) and the CES ($M = 50$) and statistical significance was measured using Hotelling's T^2 statistic. With all twenty subtest dependent variables included, results indicated statistically significant differences between mean scale scores found in this study and the normative means for the regular ($T^2(19, 28) = 342.0, P = .000$) and AcTal

participants ($T^2(19, 143) = 628.4, p = .000$). Composite score differences were also significantly different from the norms for the regular students ($T^2(1, 16) = 20.7, p < .000$), but not different among the AcTal students ($T^2(1, 162) = .717, p = .398$). However, since it was found (i.e., via the MANOVAs) that the groups did not significantly differ on the composite scores, it could not be inferred that one group was higher than the norm while the other was not. Therefore, only the statistically significant multivariate findings for the various subtests comprising the scales are reported below.

4.6.2 Results for Multidimensional Self Concept Subscales. Students in both programs were higher than the established test norms on the Academic (Regular: $t(48) = 6.63, p = .000$; AcTal: $t(164) = 3.59, p = .000$) and Affect ($t(48) = 5.24, p = .000$; AcTal: $t(164) = 2.80, p = .006$) subscales of the MSCS only. However, none of the mean MSCS scale scores for either group were significantly lower than the normative scores. Moreover, no mean score for either group was outside the range considered average, with all scores being within the range of 85 to 115. All mean scores clustered closely around the standardized mean of 100, as shown in Table 2.6.

4.6.3 Results for the Classroom Environment Subscales. For the CES, comparisons to the normed means ($M = 50$) showed that students in both groups had statistically higher scores for the dimensions of Affiliation [AcTal $t(164) = 7.52, p = .000$; Regular $t(48) = 2.66, P = .010$], Competition [AcTal, $t(164) = 6.99, P = .000$; Regular $t(48) = 7.00, p = .000$], Rule Clarity [AcTal, $t(164) = 3.62$; Regular $t(48) = 4.95, p = .000$] and Teacher Control [AcTal $t(164) = 9.23, p = .000$; Regular $t(48) = 4.95, p = .000$]. The students in congregated program also had statistically higher scores than the norm for the subscale of Innovation [$t(164) = 8.02, p = .000$]. Although mean scores

were statistically higher than the norm, scores were not outside the range of what would be considered average or normal.

4.6.4 Results for Multidimensional Student Life Satisfaction Subscales. Since test norms were not available for the MSLSS, mean scores from five validation studies, including one study with gifted students, were weighted by number of participants and combined into means for each of the five subscales and the global (composite) score. The total number of respondents equalled 1462, with all participants being elementary school students. Students in both programs had means that were higher than the weighted means for the Friends (regular: $t(48) = 4.83, p = .000$; AcTal: $t(164) = 4.59, p = .000$) and Living Situation (regular: $t(48) = 2.69, p = .010$; AcTal: $t(163) = .005, p = .005$) subscales of the MSLSS. Additionally, Students in the regular program only exceeded the weighted mean on the Self subscale ($t(48) = 3.04, p = .004$). All normative comparisons to the MSLSS are shown in Table 2.7. Again, no scores for either group were significantly lower than the weighted means. Also, no mean score was more than half a standard deviation from the weighted mean for any subscale, for either group, thereby indicating that all scores were clustered around the “average” score range.

4.7 Results for Question #6: Continuity of Variable Interrelationships by Educational Program. Correlations were computed to examine relationships and shared variance between scores on the MSCS, CES, and MSLSS for each programming group. The table below shows that Self concept and Multidimensional Life Satisfaction scores correlated the strongest ($r_{\text{regular}} = .80, r_{\text{AcTal}} = .70$ for global scores). Correlations between subscale scores on the MSLSS and MSCS were quite consistent between groups, ranging from .29 (MSCS Physical vs MSLSS Friends) to .75 (MSCS Family vs MSLSS

Family), with a mean intersubscale correlation of .49 for the Actal students. Likewise, subscale intercorrelations ranged from .22 (MSCS Family vs MLSS School) to .63 (MSCS Affect vs MSLSS Living) for the regular students yielding a mean of .46.

Correlations of Classroom Environment Scale scores to those of the MSCS and MSLSS were generally weaker (see table 4.5). The Involvement, Affiliation, Order, and Organization scales of the CES correlated weakly to moderately with global scores of the MSCS and MSLSS for both groups, ranging from $r = .21$ to $r = .53$. Additionally, weak correlations of $r = .38$ occurred for the Task Support and Task Orientation subscales for the regular group, and even lower statistically significant correlations of .19 and .22 occurred for the specialized group. The Rule Clarity subscale also correlated weakly ($r_{\text{regular}} = .30$, $r_{\text{AcTal}} = .22$), while the Competition and Teacher Control scales of the CES had no relationship with the MSLSS or MSCS composite and subtest scores for either group. For the group in regular school programming, the mean subscale correlation with the MSLSS subscales was .24 compared to .16 for the Actal group. These subscale correlations were almost exactly the same between the CES and MSCS scores, yielding mean subscale correlations of .24 for the regular group compared to .17 for the AcTal group.

Table 4.5. Pearson Correlations Between the Multidimensional Life Satisfaction Scale (MSLSS) with the Classroom Environment Scale (CES) and Multidimensional Self Concept Scale (MSCS)

	MSLSS Family		MSLSS Friends		MSLSS School		MSLSS: Living		MSLSS Self		MSLSS Total		Mean r Subscales	
	R	S	R	S	R	S	R	S	R	S	R	S	R	S
MSCS:Social (49)	.36*	.42**	.63**	.43**	.48**	.41**	.64**	.37**	.51**	.63**	.78**	.58**	.52	.45
MSCS:Competence	.40**	.51**	.38**	.42**	.50**	.44**	.49*	.41**	.44**	.67**	.66**	.64**	.44	.51
MSCS:Affect	.51**	.48**	.50**	.38**	.46**	.49**	.63*	.42**	.44**	.65**	.75**	.63**	.51	.48
MSCS:Academic	.38**	.47**	.39**	.37**	.42**	.51**	.59*	.33**	.37**	.57**	.65**	.59**	.43	.57
MSCS:Family	.62**	.75**	.39**	.32**	.22	.33**	.45*	.42**	.40**	.48**	.58**	.60**	.42	.46
MSCS:Physical	.34*	.37**	.39*	.29**	.31*	.40**	.35	.37**	.55**	.68**	.54**	.54**	.39	.42
MSCS:TOTAL	.50**	.59**	.57**	.43**	.47**	.50**	.64**	.45**	.53**	.72**	.80**	.70**	.54	.54
Mean r (subscales)	.44	.60	.45	.37	.48	.43	.53	.39	.45	.61	.66	.60	.46	.49
CES:Involved	.33*	.22**	.52**	.18*	.43**	.44**	.18	.22*	.41*	.17*	.53**	.33**	.37	.25
CES:Affiliation	.39**	.25**	.39	.33*	.46**	.29**	.13	.26**	.28	.38**	.48**	.39**	.33	.30
CES:Tsk_Spprt	.13	.06	.36*	.13	.37*	.28**	.15	.15	.28	.10	.38**	.19*	.26	.14
CES:Task_Ornt	.37**	.24**	.27	.05	.27	.20*	.16	.18*	.29*	.13	.38**	.22*	.27	.16
CES:Compete	.03	.02	.08	.06	-.22	.02	-.04	-.02	.18	.03	-.05	.03	.12	.03
CES:Order_Org	.25	.23**	.26	-.05	.46**	.28**	.16	.16*	.31*	.13	.43**	.21**	.29	.17
CES:Rule_Clarity	.32*	.24**	.20	.08	.23	.25**	.11	.18*	.23	.05	.30*	.22**	.22	.16
CES:Teachr_Cntrl	.12	.04	-.04	-.04	.19	-.11	.01	.04	-.14	-.14	.08	-.06	.10	.07
CES:InnovateTS	.12	.17*	.34*	.15	.34	.25**	.02	.19*	.22	.12	.31*	.24**	.21	.17
Mean r (subscales)	.23	.18	.27	.12	.33	.24	.11	.16	.26	.14	0.33	.24	.24	.16

Table 4.6. Pearson Correlations Between the Global and Subscale Scores of the Multidimensional Self Concept Scale (MSCS) and the Classroom Environment Scale (CES).

	MSCS Social		MSCS Competence		MSCS Affect		MSCS Academic		MSCS Family		MSCS Physical		MSCS Total		Mean Absolute r for subscales	
	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
CES:Involved	.44**	.31**	.46**	.25**	.43**	.33**	.27	.24**	.24	.20*	.44**	.24**	.47**	.40**	.38	.26
CES:Affiliation	.36*	.41**	.36*	.34**	.35*	.44**	.20	.28**	.25	.24**	.24	.29**	.34*	.17*	.29	.33
CES:Tsk_Spprt	.40**	.21**	.42**	.12	.37**	.23**	.22	.14	.21	.11	.43**	.10	.40*	.11	.34	.15
CES:Task_Ornt	.25	.02	.33*	.13	.28	.09	.25	.10	.08	.25**	.26	.05	.28	-.07	.24	.07
CES:Compete	.01	-.06	-.08	-.02	-.22	-.09	.05	-.03	-.06	-.04	.05	-.07	-.06	.26**	.08	.05
CES:Order_Org	.36*	.18*	.51**	.27**	.37**	.24**	.22	.18*	.17	.22*	.41**	.28**	.40**	.09	.34	.23
CES:Rule_Clarity	.27	-.01	.33*	.07	.20	.07	.28*	.03	.12	.20**	.37*	.14	.29*	-.15	.26	.09
CES:Teachr_Cntrl	.05	-.19*	.12	-.10	.06	-.17*	.02	-.18*	-.02	.05	-.03	-.15	.03	.26**	.05	.14
CES:InnovateTS	.20	.29**	.17	.22**	.23	.27**	.03	.23**	.07	.20**	.27	.16*	.18	.36**	.16	.23
Mean Absolute <i>r</i>	.26	.19	.31	.17	0.28	0.22	.17	.16	.14	.17	.28	.16	.27	.21	.24	.17

** Significant, $p = .01$ * Significant, $p = .05$

4.8 Summation of Findings

There were no group differences on the global MSCS or MSLSS scores. There were only three, of a possible twenty, significant subscale differences between the AcTal and regular programming groups. On the MSCS, students had higher mean scores on academic self-concept than students in the AcTal program. For the MSLSS, the only significant subscale difference was for the dimension of Self Satisfaction where, again, students in the regular program had a higher mean score on Self Satisfaction than students in the AcTal program. For the Classroom Environment Scale, the only difference between the AcTal and regular students was on the subscale of Innovation, where the mean score for AcTal students was higher than for the regular students. Both groups of students were at, or statistically above the normative means but within what is considered the average or normative range, for all global and subscale measures. In terms of interrelationships between variables, there was a moderately strong correlation between MSCS scores and MSLSS scores and a much weaker correlation between these scores and those of the Classroom Environment Scale. The general pattern of relationship was similar for both educational groups.

5 DISCUSSION AND CONCLUSIONS

5.1 Review of main study purpose.

In summary, the main objective of this study was to compare gifted students participating in a congregated program to gifted students who had opted to remain in regular programming on various factors associated with well-being and adjustment. All students were pupils in the Saskatoon Public School Division. The strategy was to collect psychosocial information directly from students to examine their perceived well-being and satisfaction in their respective programs. The general expectation was that the homogeneous program, which was said to be designed specifically for gifted students, would yield various benefits not seen with the students in regular programming. Interpretations and conclusions for each of the research questions are discussed in the following section.

5.2 Findings and Implications

5.2.1 Multidimensional Self Concept. It was thought that students in the AcTal program would have more positive global and domain self concepts (i.e., social, competence, affect, academic, family, physical) than academically talented students who met criteria for the program but who chose not to participate. Counter to expectation, there was no difference in global self concept between the two groups, and all dimensions of self concept were as high, or higher, than generally found among similarly-aged students. This second result was congruent with previous findings (e.g., Hoge, 1991). It was noticed though, that the variation in self-concept was wider-spread in the AcTal population (i.e., generally larger standard deviations) and not simply the result of a few

very low scores. The variation among the students in regular programming was somewhat smaller than is normative, while students in the AcTal group were quite normal with regard to the variance of self-concept scores. The reasons for this are unknown, but could be due to having a smaller self-selected group of participants from the regular-programming group who agreed to participate in the study.

Consistent with Marsh's widely-observed "Big Fish Little Pond Effect", students in the AcTal program had slightly lower levels of academic self concept than the gifted students in the regular program (Hoge & Renzulli, 1993; Marsh, 1987; Marsh, 1990a, 1990b, 1990c; Marsh, Chessor, Craven, & Roche, 1995; Marsh & Hau, 2003; Marsh, Kong, & Hau, 2000). However, students in specialized programming had a mean score slightly more than two-thirds of a normalized standard-deviation (i.e., fifteen points) above the norm, while students in the AcTal program had a mean score that was slightly less than a third of a normalized standard deviation above the mean. Given that both groups of students were statistically above the norm, but within the range considered normal or average, it is difficult to make any concrete conclusions about the implications of this finding. To elaborate further, it is not yet clear whether it may be better to have a slightly lower or higher academic self concept. Some theorists have argued that a slightly lowered academic self concept is not always negative, as it does not necessarily diminish academic performance. Indeed, it may actually increase academic performance in pushing students to work harder (Dai, 2004; Plucker et al., 2004). Furthermore, much of the variation in academic self-concept was unexplained by group differences and, speculatively, was due to individual differences. In summary, although the "Big-Fish-Little-Pond" Effect was replicated, there was little information to suggest that either

group is advantaged or disadvantaged due to affiliation with one programming group or the other.

5.2.2 Life Satisfaction. Results in this domain were, again, somewhat contrary to expectation. Although differences were expected to be small, it was anticipated that students in the more mutually nourishing and academically challenging environment of the AcTal program would report greater levels of student life satisfaction. Again though, there were no differences on Global Life Satisfaction, as both groups were slightly above average in terms of reported satisfaction as students within their school and living environment.

As for the only statistically significant group difference, students in the regular program appeared to be slightly more satisfied with themselves - their physical appearance, personality, and general competencies - than those in the specialized academic program. Additionally, students in the regular program reported themselves to be slightly higher in their self satisfaction than generally found in the previous studies using the MSLSS.

Since the range of questions pertaining to self-satisfaction appeared to have a close connection with self-concept, it was perplexing how a significant effect would occur on this subscale but not for the global self-concept score. It is reasonable to believe that lower perceived academic competence among the AcTal students could lead to a diminishment in self satisfaction. This did not appear to be what happened though, especially since no questions in this domain referred to perceived academic competencies. The fact that the self satisfaction domain had the widest group difference in standard deviation appears to have had something to do with this finding, which was

also linked to the very low scores of a few students (see Appendix G). An individual analysis of items comprising this domain could possibly shed further light on this finding, but this was not carried out because the time required to do this was deemed not worthwhile considering that both group mean scores remained well within the moderate range (i.e., within one standard deviation from the weighted mean). It was concluded that both groups of students appeared to be satisfied with themselves, and overall, students in both programs demonstrated an equally high level of life satisfaction.

5.2.3 Classroom Environment. It also was shown that both groups of students had a generally average or normal impression of their classroom environment, including the interpersonal, growth, and structural aspects of their environment. In agreement with the predictions, students in the specialized program saw their program as slightly more innovative than that of regular school programs. However, this difference was, again, small, and both group's scores were within a third of a standard deviation from the normative mean. In summary, it seemed that the AcTal students tended to believe their classroom environment was more innovative and creative in terms of approaches to assignments and daily activities, as was expected given that a main theme of the AcTal program is to provide innovation in academic programming. Again though, this difference was not substantively meaningful enough to draw any firm conclusions.

5.2.4 Comparison to the General Peer Population. Neither group of students was found to be below that which would be expected of normally-intellectually-developing peers, although scores were statistically higher than the normative means on some measures. As a note, there were some encouraging findings that both groups of gifted students perceived their friendships and living situations to be quite satisfying, and

both groups of students reportedly were also leaning toward “above-average” in terms of their self-perceived academic capacity and their emotional maturity. As a further note, there was a tendency toward slightly higher-than-normal levels of student affiliation and competition. Interestingly, this finding indicated that higher levels of competition were not incompatible with levels of affiliation, and could actually be a source of affiliation. There was also some indication of a common perception of fairly high levels of classroom rules and teacher control. This was also interesting, considering that gifted students are thought to be more independent and self-controlled learners. However, it must be emphasized that these were suggestive findings. In all cases, scores were within one standard deviation of the normative mean, and therefore, within the range of what would be considered standard or normal. Therefore, it could only be safely concluded that there were no truly substantive differences between the groups on any of the constructs measured, being average or normal in regard to their self-concepts, life-satisfaction, and perceptions of their learning environment.

These findings were interesting and profound, however, in relation to the fact that these students are not normal in terms of their cognitive and academic capacities, which were all measured to be very high (i.e., at-least two standard deviations above the mean for each participant). Widdifield-Konkin (2004) also found that the emotional intelligence of these students is normal or average. Therefore, the notion that gifted students are more distraught and more affected by numerous emotional and social difficulties than the general population was certainly not supported in this study. Conclusively, gifted students in this study demonstrated that they are as emotionally or socially balanced as students in general.

5.2.5 Effect of Grade and Gender on Educational Program Differences. It was expected that students who were in the AcTal program would show greater psychosocial gains the longer they were in the program (i.e., increments by grade). This did not appear to be the reality of the situation though, since the grade of students was not associated with the scores on the various measures for either group. In other words, scores on the measures remained quite stable regardless of the grade of the students. This was taken to indicate that the AcTal program does not appear to be generating major psychosocial benefit for students, at least as far as could be detected by the measures used in this study. It was rather perplexing that grade (or age) was not a relevant factor at all (i.e., no main effects), considering that students in adolescence, a developmental period known to be related to changes in perception of self, had self perceptions that were largely the same as their academically-adept peers in grade five. Perhaps gifted students have a more precocious and more stable sense of self than the general population.

There were some main differences for gender for all students in the study, but there were no differences that were only particular to one of the educational groups. In other words, gender also had no contribution in explaining any variation in scores between the two program groups and therefore, these results were taken to mean that the two programs affect students of each gender equally.

5.2.6 Relationship between Learning Environment, Self Concept, and Life Satisfaction by Group. There appears to be a moderately strong association between life satisfaction and self concept according to the results of this study. This result is fairly consistent with previous findings, although the strength of relationship appears to be slightly stronger than that found in previous studies examining the relationship between

the Student's Life Satisfaction Scale (SLSS: Huebner, 1991a) and the Student Self-Concept Scale (SSCS: Gresham et al., 1993; McCullough, Huebner, & Laughlin, 2000). Participant's perceptions of classroom environment were only weakly correlated with multidimensional life satisfaction and self concept. Interestingly, the mean strength of relationships between the various subscale scores was nearly identical for both groups of participants, although there was slight variation in the pattern of inter-correlations. In summary, the relationship between the three constructs under study - multidimensional life satisfaction, multidimensional self concept, and perceptions of classroom environment were very consistent between the two programming groups. It makes sense that multidimensional self-concept and life-satisfaction correlated moderately, as one's perceptions of oneself are known to be associated with one's level of appreciation and satisfaction. However there does appear to be significant variation here as well, since the correlations were only moderate, thereby suggesting that the instruments were not simply measuring the same constructs. This seems to further suggest that gifted students could have moderately high self concepts and moderately low levels of satisfaction. This would be quite probable in the case where a bright student is bored or discontented with his or her living and learning environment. It seems to be make less sense that a student may have low self concept and still be very satisfied, although this may also occur.

The weaker relationship between classroom environment and self-concept and classroom environment and life satisfaction was unexpected, given that the literature suggests that one's social environment is very important to satisfaction and well-being. It is hard to know why this finding could have occurred, as the literature suggests that one's sense of fit in their social and physical environment should strongly correlate with their

satisfaction and sense of self. One logical explanation may be that due to the Classroom Environment Scale being a primarily factual recording of student's perceptions than an evaluative one, the responses did not correlate with sense of self and self satisfaction. In other words, it may not have simply sufficed that students agreed that their classroom had certain traits (e.g., high structure and rules) without having students include an evaluative component of this. For some students, this may have been a source of pleasure and satisfaction, and for others, this may have been a source of distress. Possibly, if an evaluative component was included (e.g., How much do you like clear rules and expectations?), the correlations with life satisfaction and self concept may have been much stronger. In conclusion, further research, possibly including an affective, evaluative component, may be needed to further clarify the dynamics of the relationship between perceived environment, sense of life satisfaction, and self-concept.

5.3 Conclusions

Overall, the results of this study indicate that gifted students in both educational programs are satisfied with who they are and where they are relative to other students. They view their classroom activities and interactions with their fellow students and teachers positively. They also appear to generally have a healthy view of themselves as students and people, as general evidence of a high degree of well-being. From the results of this study, it does not appear that there are clear advantages to participating in the specialized homogeneous program but neither are there clear disadvantages. Findings of the study do not suggest improvements in measured psychosocial qualities over time; that is, there was no general increase in measured scores by grade for the AcTal students,

which should have occurred if the program was generally effective in helping students to improve their self concepts and life satisfaction.

In comparing the programming groups, Marsh's Big-Fish-Little-Pond effect was again replicated in this study. Findings indicate students in the homogeneous program have a marginally lower perception of their academic abilities than their gifted peers in the regular program. However, the meaningfulness of this finding is rather trivial since the size of the difference between both groups is small and both groups were well within the average range. There is also some indication that students in the specialized homogeneous program view their academic environment as somewhat more innovative, with more creativity and autonomy in classroom activities and assignments, compared to students in the regular academic program. Since this is one of the main objectives of AcTal, it is not surprising that the specialized program might be viewed as more innovative than the regular program, although it is actually more surprising that the difference was not greater than it was. Not much more can be said about this, as both programs appear to have an average amount of innovation within them.

The other notable finding in this study is the moderate association between multidimensional self concept and multidimensional life satisfaction and the relative lack of association between these constructs and classroom environment. This relationship holds true for both groups of participants. A more positive self concept appears to be moderately associated with sense of life satisfaction. Contrary to expectations, perceptions of classroom environment do not appear to be associated with these former constructs. Speculatively, this finding could be largely due to measurement considerations.

5.4 Limitations and Suggestions for Future Research. One obvious potential drawback in this study was the fact that the study was not experimental, and it did not involve random assignment, to educational groups. That is, the educational-programming groups compared in this study may not be equal in many respects. The most obvious difference is that one group of gifted students chose not to participate in AcTal for whatever reasons. This was not a major drawback in this particular study though because, in large part, there were not many significant findings. That is, one or more unknown traits unique to one educational group would not explain the null findings. With this said though, the issue of non-group equivalence could have been partially addressed through the use of a matching technique whereby students in AcTal could be matched on various demographic or other characteristics that could potentially cause group differences on the constructs under study. However, deciding on the characteristics in which to match students, outside that of more general demographic factors (e.g., gender, IQ, age), can be difficult, especially without prior research to provide information on what variables may be important (e.g., boredom, number of friends, style of parenting). Matching can also be an increasingly difficult task, pragmatically, as the probability of finding adequate matches decreases with increasing numbers of matching variables.

Even though psychosocial advantages to attending AcTal were not revealed, this does not necessarily mean there are no advantages to students attending the specialized program. It is possible that the AcTal program is more beneficial to students with certain characteristics and less beneficial for students with other characteristics. The opposite may be true for the regular program. That is, the revealing of only a few programming differences in this study could be the result of an averaging or nullifying effect whereby

students who are likely to benefit the most are being mixed with students who may benefit much less from the specialized program. Again, some remediation of this problem could be addressed if more was known about certain characteristics of the individual students.

It was recognized in hindsight, that one such important variable that may not have been given a serious enough focus (i.e., direct measure used for this) was perceived boredom and lack of challenge in gifted students (Schwean, 1992). However, the results of this study seem to suggest that if gifted students in the regular program are bored, this does not appear to be affecting their sense of self-concept or satisfaction since their scores are generally in the average to above-average range. Student's perceptions of their level of involvement and task commitment were also at average levels, contrary to what would be expected if they were bored. However, a direct analysis of perceived boredom may be a useful construct to measure in subsequent studies with gifted students. For example, it could be that the AcTal program is particularly beneficial to bored students. Measures could then be taken to identify bored gifted students to ensure they are invited to participate in the program, instead of inviting all students who meet only the traditional criteria for acceptance. Given this possibility, it may be useful to embark on further research to compare characteristics of students who tend to flourish (or fail) in these types of programs in order to be more efficient in selecting students for whom the specialized program would be particularly useful.

Qualitative research consisting of interviews or focus groups with gifted students from this study (or other gifted populations) could facilitate a more personal investigation into the attributions students make concerning perceived differences in academic ability.

Additionally, this approach could also be used to learn about the student's preferences concerning aspects of their learning environments. Such research would also provide insight into why some students chose one program over the other. Lastly, this type of research might also lead to information about characteristics of students who are more apt to benefit from a specialized program.

Generally, further research on the interplay of constructs relating to well-being, mental health, positive affect, and life satisfaction of gifted students is in order. Further clarification on the role of life-satisfaction, self-concept, and environmental fit to the possible overarching construct of well-being should also be examined. These constructs are important on their own but possibly, they should be combined into more comprehensive measures of well-being. Since well-being and overall psychosocial adjustment of gifted students was the ultimate area of concern in this study, the development and use of more direct and more complete measures of well-being may be more effective than employing theoretically related or proxy measures of well-being. Although general "well-being" measures are being developed for adults, no such instruments have been developed for children yet.

REFERENCES

- Ablard, K. E. (1997). Self-perceptions and needs as a function of type of academic ability and gender. *Roeper Review*, 20, 110-115.
- Alfermann, D. & Stoll, O. Effects of physical exercise on self-concept and well-being. *International Journal of Sport Psychology*, 31, 47-65
- Anderson, G. J., & Walberg, H. J. (1972). Class size and the social environment of learning: A replication. *Alberta Journal of Educational Research*, 18, 277-286.
- Ash, C., & Huebner, E. S. (1998). Life satisfaction reports of gifted middle-school children. *School Psychology Quarterly*, 13, 310-321.
- Avery, L. D., & VanTassel Baska, J. (2001). Investigating the impact of gifted education evaluation at state and local levels: Problems with traction. *Journal for the Education of the Gifted*, 25, 153-176.
- Bailey, G. K. (1987). *Comparison of Self-Concept and Classroom Environment in Elementary School Children*. Paper presented at the Annual Convention of the Southwestern Psychological Association (33rd, New Orleans, LA, April 16-18, 1987).
- Benjamin, M. (1994). The quality of student life: Toward a coherent conceptualization. *Social Indicators Research*, 31, 205-264.
- Benjamin, M., & Hollings, A. (1997). Student satisfaction: Test of an ecological model. *Journal of College Student Development*, 38, 213-228.
- Benjamin, M., & Hollings, A. E. (1995). Toward a theory of student satisfaction: An exploratory study of the "quality of student life." *Journal of College Student Development*, 36, 574-586.

- Bland, L. C., Sowa, C. J., & Callahan, C. M. (1994). An overview of resilience in gifted children. *Roeper Review*, 17, 77-80.
- Bouchard, T. J., Lykken, D. T., McGue, M., & Segal, N. L. (1990). Sources of human psychological differences: The Minnesota study of twins reared apart. *Science*, 250, 223-228.
- Bracken, B. A. (1992). *Multidimensional Self Concept Scale: Examiner's manual*. Austin, TX: Pro-ed.
- Braverman, P. S. (2003). Self-concept, life satisfaction, and academic performance in adolescents. *Dissertation Abstracts International*, 64 (1-A), (AAT 3078735).
- British Columbia Teacher's Federation (2004). *Myths of Giftedness*. Retrieved October 5th, 2004 from <http://www.bctf.bc.ca/PSAs/AEGTCCBC/publications/broch/Myths.html>.
- Byer, J. L. (1999). The effects of students' perceptions of classroom social climate in middle school social studies classes on academic self-concept. *Dissertation Abstracts International*, 60 (6-A), (AAT 9935681).
- Byrne, B. M. (1984). The general/academic self-concept nomological network: A review of construct validation research. *Review of Educational Research*, 54, 427-456.
- Byrne, D. B., Hattie, J. A., & Fraser, B. J. (1986). Student perceptions of preferred classroom learning environment. *Journal of Educational Research*, 80, 10-18.
- Callahan, C. M. (1983). Issues in evaluating programs for the gifted. *Gifted Child Quarterly*, 27, 3-7.

- Carpenter, M. (2001). The IQ factor: Despite advances in defining gifted children, intelligence testing still plays a large role. Retrieved July 26th, 2004, from <http://www.post-gazette.com/regionstate/20010610giftediqsidereg8.asp>.
- Chan, D. W. (2002). Perceptions of giftedness and self-concepts among junior secondary students in Hong Kong. *Journal of Youth and Adolescence*, 31, 243-252.
- Chang, L., McBride-Chang, C., & Stewart, S.M. (2003). Life satisfaction, self-concept, and family relations in Chinese adolescents and children. *International Journal of Behavioral Development*, 27, 182-189.
- Chernos, S. (2000). Special education for gifted children. *Education Today*, 12, 16 - 18. Retrieved September 15th, 2003, from <http://gateway.proquest.com>.
- Cross, S. E., Gore, J. S., & Morris, M. L. (2003). The relational-interdependent self-construal, self-concept consistency, and well-being. *Journal of Personality and Social Psychology*, 85, 933-944
- Cross, T. (2002). Competing with myths of the social and emotional development of gifted students. *Gifted Child Today Magazine*, Summer Edition.
- Competing with myths of the social and emotional development of gifted students. *Gifted Child Today Magazine*, Summer, 2002.
- Czaja, S. J. (1975). Age differences in life satisfaction as a function of discrepancy between real and ideal self concepts. *Experimental Aging Research*, 1, 81-89. Retrieved July, 2003, from www.tandf.co.uk/journals/tf/0361073X.html.
- Dai, D. Y. (2004). How universal is the big-fish-little-pond effect? *American Psychologist*, 59, 267 -268.

- DaSilva, T. (2002). *An Evaluation of the Structured Success Program: From the Student's Point of View*. Unpublished master's, University of Saskatchewan, Saskatoon, Canada.
- Delcourt, M. A. B., Loyd, B. H., Dewey, G. C., & Goldberg, M. D. (1994). Evaluation of the effects of programming arrangements on student learning outcomes. *Research Monograph 94108*. Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.
- Delugach, R. R., Bracken, B. A., Bracken, M. J., & Schicke, M. C. (1992). Self concept: Multidimensional construct exploration. *Psychology in the Schools*, 29, 213-223. Retrieved May 10th, 2004, from <http://www.interscience.wiley.com/jpages/0033-3085/>.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542-575. Retrieved before June, 2004, from <http://www.apa.org/journals/bul.html>.
- Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, 31, 103-157. Retrieved from <http://www.wkap.nl/journalhome.htm/0303-8300>.
- Diener, E., Sapyta, J. J., & Suh, E. (1998). Subjective well-being is essential to well-being. *Psychological Inquiry*, 9(1), 33-37.
- Diener, E., Suh, E.-M., Lucas, R.-E., & Smith, H.L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276-302.
- Disch, W. B., Harlow, L. L., Campbell, J. F., & Dougan, T. R. (2000). Student functioning, concerns, and socio-personal well-being. *Social Indicators Research*,

- 51, 41-74. Retrieved before September 26th, 2004 from <http://www.wkap.nl/journalhome.htm/0303-8300>.
- Dixon, F. A. (1998). Social and academic self-concepts of gifted adolescents. *Journal for the Education of the Gifted*, 22(1), 80-94.
- Dobson, J. E., Campbell, N. J., & Dobson, R. L. (1982). The relationship between children's self-concepts, perceptions of school, and life change. *Elementary School Guidance and Counseling*, 17, 100-107.
- Dole, S. (2000). The implications of the risk and resilience literature for gifted students with learning disabilities. *Roeper Review*, 23, 91 - 96.
- Drumgoole, W. P. (1981). *Self concept and life satisfaction as perceived by young, middle aged, and senior adults*. Dissertation-Abstracts-International, 41(7-A), 2939 (AAT 8027666).
- Dunn, R. J., & Harris, L. G. (1998). Organizational dimensions of climate and the impact on school achievement. *Journal of Instructional Psychology*, 25, 100-114.
- DuFord, S. (1995). Acceleration - A Viable Option for Gifted Children. Central Michigan University.
- Ehrhardt, J. J., Saris, W. E., & Veenhoven, R. (2000). Stability of life-satisfaction over time: Analysis of change in ranks in a national population. *Journal of Happiness Studies*, 1, 177-205. Retrieved in 2003 from <http://www.wkap.nl/journalhome.htm/1389-4978>.
- Ericsson, K. A., Krampe, R. T., & Tesch-Roemer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100, 363-406. Retrieved from <http://www.apa.org/journals/rev.html>.

- Feldhusen, J. F., Sayler, M. F., Nielsen, M. E., & Kolloff, P. B. (1990). Self-concepts of gifted children in enrichment programs. *Journal for the Education of the Gifted*, 13, 380-387.
- Fiedler, E. D. (1999). Gifted children: The promise of potential/the problems of potential. In V. Schwean & D. Saklofske (Ed.), *Handbook of Psychosocial Characteristics of Exceptional Children*. New York, NY: Kluwer Academic/Plenum Publishers.
- Fisher, D. L., & Fraser, B. J. (1983). Validity and use of the Classroom Environment Scale. *Educational Evaluation and Policy Analysis*, 5, 261-271.
- Frisch, M. B., Cornell, J., Villanueva, M., & Retzlaff, P.J. (1992). Clinical validation of the Quality of Life Inventory. A measure of life satisfaction for use in treatment planning and outcome assessment. *Psychological Assessment*, 4(1), 92-101.
- Retrieved from <http://www.apa.org/journals/pas.html>.
- Gallagher, J., Harradine, C. C., & Coleman, M. R. (1997). Challenge or boredom? Gifted students' views on their schooling. *Roeper Review*, 19, 132-141.
- Gallagher, J. J. (2000a). Changing Paradigms for Gifted Education in the United States. In K. A. Heller, F. J. Moenks, R. J. Sternberg, & R. F. Subotnik (Eds.), *International handbook of giftedness and talent (2nd ed.)*. New York, NY, US: Elsevier Applied Science Publishers/Elsevier Science Publishers.
- Gallagher, J. J. (2000b). Unthinkable Thoughts: Education of Gifted Students. *Gifted Child Quarterly*, 44, 5-12.
- Garcia-Gomez, A. (2001). Desarrollo y validacion de un cuestionario multidimensional de autoconcepto. / Development and validation of a multidimensional self-

- concept scale. *Revista Iberoamericana de Diagnostico y Evaluacion Psicologica*, 11(1), 29-54.
- Garnier, R. S. (1997). A comparison of gifted African-American achieving and underachieving students. *Dissertation Abstracts International*, 57 (8-b), 5359, (AAT 9701552).
- Garson (2003). GLM: Mancova and Manova: Class Notes. Retrieved, December 15, 2004, from <http://psych.ucsc.edu/faculty/zurbrigg/psy214a/04MV9b.pdf>
- George, D., & Mallery, P. (2001). *SPSS for Windows Step by Step*. Needham Heights, Pearson: Pearson Education Company.
- Gilman. (2001). *Development of MI Theory*. Retrieved September 7th, 2004, from <http://www.Indiana.edu/-intell/mitheory.shtml>.
- Gilman, R. & Huebner, E. S. (2003). A review of life satisfaction research with children and adolescents. *School Psychology Quarterly*, 18, 192-205.
- Gilman, R., & Huebner, E. S. (2000). Review of life satisfaction measures for adolescents. *Behaviour Change*, 17, 178-195.
- Ginsberg-Riggs, G. (2003). *Gifted Education in the Saskatoon Public School Division*. Retrieved August 31, 2003, from <http://schools.sbe.saskatoon.sk.ca/greys/AcTal/>.
- Greenspoon, P. J., & Saklofske, D. H. (1997). Validity and reliability of the multidimensional students' life satisfaction scale with Canadian children. *Journal of Psychoeducational Assessment*, 15, 138-155.
- Greenspoon, P. J., & Saklofske, D. H. (1998). Confirmatory factor analysis of the Multidimensional Students' Life Satisfaction Scale. *Personality and Individual Differences*, 25, 965-971.

- Griffin, M. D. (2000). Multidimensional life satisfaction reports of middle school students with serious emotional disturbance. *Journal of Psychoeducational Assessment, 18*, 111-124.
- Grossberg, I. N., & Cornell, D. G. (1988). Relationship between Personality Adjustment and High Intelligence: Terman versus Hollingworth. *Exceptional Children, 55*, 266-272.
- Guay, F., Marsh, H. W., & Boivin, M. (2003). Academic self-concept and academic achievement: Developmental perspectives on their causal ordering. *Journal of Educational Psychology, 95*(1), 124-136.
- Haertel, G. D., Walberg, H. J., & Haertel, E. H. (1981). Socio-psychological Environments and Learning: A Quantitative Synthesis. *British Educational Research Journal, 7*, 27-36.
- Harter, S., Bresnick, S., Bouchey, H. A., & Whitesell, N. R. (1997). The development of multiple role-related selves during adolescence. *Development and Psychopathology, 9*(4), 835-853. Retrieved from <http://uk.cambridge.org/journals/dpp/>.
- Harter, S., Waters, P. L., & Whitesell, N. R. (1997). Lack of voice as a manifestation of false self-behavior among adolescents: The school setting as a stage upon which the drama of authenticity is enacted. *Educational Psychologist, 32*, 153-173. Retrieved May 27th, from www.erlbaum.com/Journals/journals/EP/ep.htm.
- Hoge, R. D., & McScheffrey, R. (1991). An investigation of self-concept in gifted children. *Exceptional Children, 57*, 238-245.

- Hoge, R. D., & Renzulli, J. S. (1993). Exploring the link between giftedness and self-concept. *Review of Educational Research*, 63, 449-465.
- Huebner, E. S. (1991). Further validation of the Students' Life Satisfaction Scale: The independence of satisfaction and affect ratings. *Journal of Psychoeducational Assessment*, 9(4), 363-368.
- Huebner, E. S. (1994a). Conjoint analyses of the Students' Life Satisfaction Scale and the Piers-Harris Self-Concept Scale. *Psychology in the Schools*, 31, 273-277.
- Huebner, E. S. (1994b). Preliminary Development and Validation of a Multidimensional Life Satisfaction Scale for Children. *Psychological Assessment*, 6, 149-158.
- Huebner, E. S. (1998). "Cross-racial application of a children's Multidimensional Life Satisfaction Scale": Erratum. *School Psychology International*, 19, 290.
- Huebner, E. S., Brantley, A., Nagle, R. J., & Valois, R. F. (2002). Correspondence between parent and adolescent ratings of life satisfaction for adolescents with and without mental disabilities. *Journal of Psychoeducational Assessment*, 20, 20-29.
- Huebner, E. S., Laughlin, J. E., & Ash, C. (1998). Further validation of the Multidimensional Students' Life Satisfaction Scale. *Journal of Psychoeducational Assessment*, 16, 118-134.
- Huebner, S. (2001). *Manual for the Multidimensional Student's Life Satisfaction Scale* (2001.), [Website]. Retrieved April, 2003, from <http://www.cla.sc.edu/PSYC/facdocs/hueblifesat.html>. [2003, April].
- Hunsaker, S. L., & Callahan, C. M. (1993). Evaluation of gifted programs: Current practices. *Journal for the Education of the Gifted*, 16, 190-200.

- Hussain, M. G. (1990). Psycho-social correlates of giftedness among deprived minority children. *Pakistan Journal of Psychological Research*, 5, 43-56.
- Jones, K. E. (1998). A study of the difference between Faith Maturity Scale and Multidimensional Self Concept Scale scores for youth participating in two denominational ministry projects. *Dissertation Abstracts International*, 1998 Oct., Vol 59(4-A), (1112).
- Keith, K. D., & Schalock, R. L. (1994). The Measurement of Quality of Life in Adolescence: The Quality of Student Life Questionnaire. *American Journal of Family Therapy*, 22, 83-87.
- Kelly, K. R. & Colangelo, N. (1984). Academic and social self-concepts of gifted, general, and special students. *Exceptional Children*, 50, 551-554
- Keith, K. D., Yamamoto, M., Okita, N., & Schalock, R. L. (1995). Cross-cultural quality of life: Japanese and American college students. *Social Behavior and Personality*, 23, 163-170.
- Kim, J. E., & Nesselroade, J. R. (2003). Relationships among social support, self-concept, and wellbeing of older adults: A study of process using dynamic factor models. *International Journal of Behavioral Development*, 27, 49-63.
- Klein, A. G., & Zehms, D. (1996). Self-concept and gifted girls: A cross sectional study of intellectually gifted females in grades 3, 5, 8. *Roeper Review*, 19, 30-34.
- Konstantopoulos, S., Modi, M., & Hedges, L. V. (2001). Who are America's gifted? *American Journal of Education*, 109(3), 344-382. Retrieved May 20th, 2003, from URLJ: <http://www.journals.uchicago.edu/AJE/home.html>.

- Langenbach, M., & Aagaard, L. (1990). A factor analytic study of the Adult Classroom Environment Scale. *Adult Education Quarterly*, 40, 95-102.
- Larson, L. M., & Borgen, F. H. (2002). Convergence of vocational interests and personality: Examples in an adolescent gifted sample. *Journal of Vocational Behavior*, 60, 91-112. Retrieved, June 17th, 2003 from <http://www.idealibrary.com/links/doi/110>.
- LeRose, B. (1978). A quota system for gifted minority children: A viable solution. *Gifted Child Quarterly*, 22, 394-403.
- Leroux, J. A. (2000). A Study of Education for High Ability Students in Canada: Policy, Programs and Student Needs. In K. A. Heller, Moenks, F. J. , Sternberg, R. J., Subotnik, Rena F. (Eds.), *International handbook of giftedness and talent (2nd ed.)*. New York, NY, US: Elsevier Applied Science Publishers/Elsevier Science Publishers.
- Leung, J. P., & Leung, K. (1992). Life satisfaction, self-concept, and relationship with parents in adolescence. *Journal of Youth and Adolescence*, 21, 653-665. Retrieved from <http://www.wkap.nl/journalhome.htm/0047-2891>.
- Lewis, J. D., & Knight, H. V. (2000). Self-concept in gifted youth: An investigation employing the Piers-Harris subscales. *Gifted Child Quarterly*, 44, 45-53.
- Luscombe, A., & Riley, T. L. (2001). An Examination of self-Concept in academically gifted adolescents: Do gender differences occur? *Roeper Review*, 24, 20-22.
- Maker, C. J. (1996). Identification of Gifted Minority Students: A National Problem, Needed Changes and a Promising Solution. *Gifted Child Quarterly*, 40, 41-50.

- Margolin, L. (1996). A pedagogy of privilege. *Journal for the Education of the Gifted*, 19(2), 164-180.
- Markowitz, F. E. (1998). The effects of stigma on the psychological well-being and life satisfaction of persons with mental illness. *Journal of Health and Social Behavior*, 39, 335-347.
- Marsh, H. W. (1987). The big-fish^little-pond effect on academic self-concept. *Journal of Educational Psychology*, 79, 280-295.
- Marsh, H. W. (1990a). Causal ordering of academic self-concept and academic achievement: A multiwave, longitudinal panel analysis. *Journal of Educational Psychology*, 82, 646-656. Retrieved from October 20th, 2003, from <http://www.apa.org/journals/edu.html>.
- Marsh, H. W. (1990b). Confirmatory factor analysis of multitrait-multimethod data: The construct validation of multidimensional self-concept responses. *Journal of Personality*, 58(4), 661-692. Retrieved from <http://www.blackwellpublishers.co.uk/asp/journal.asp?ref=0022-3506>.
- Marsh, H. W. (1990c). The structure of academic self-concept: The Marsh/Shavelson model. *Journal of Educational Psychology*, 82(4), 623-636. Retrieved from <http://www.apa.org/journals/edu.html>.
- Marsh, H. W., Chessor, D., Craven, R., & Roche, L. (1995). The effect of gifted and talented programs on academic self-concept: The big fish strikes again. *American Educational Research Journal*, 32, 285-319.

- Marsh, H. W., & Hau, K. T. (2003). Big-Fish--Little-Pond effect on academic self-concept: A cross-cultural (26-country) test of the negative effects of academically selective schools. *American Psychologist*, 58, 364-376.
- Marsh, H. W., Koeller, O., & Baumert, J. (2001). Reunification of East and West German school systems: Longitudinal multilevel modeling study of the big-fish-little-pond effect on academic self-concept. *American Educational Research Journal*, 38, 321-350.
- Marsh, H. W., Kong, C. K., & Hau, K. T. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: Counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology*, 78, 337-349.
- Mboya, M. M. (1989). The relative importance of global self-concept and self-concept of academic ability in predicting academic achievement. *Adolescence*, 24, 39-46.
- McCoach, D. B., & Siegle, D. (2002). *The Structure and Function of Academic Self-concept in Gifted and General Education Students*. American Educational Research Association. Retrieved, May 6th, 2003, from http://www.education.uconn.edu/dept/epsy/News/AERA/aera/McCoachSiegleAERA2002_SC.pdf [2003, May 6th].
- McCullough, G., Huebner, E. S., & Laughlin, J. E. (2000). Life events, self-concept, and adolescents' positive subjective well-being. *Psychology in the Schools*, 37, 281-290.
- McDaniel, T. R. (2002). Mainstreaming the gifted: Historical perspectives on excellence and equity. *Roeper Review*, 24, 112-114.

- Merrell, K. W., & Gill, S. J. (1994). Using teacher ratings of social behavior to differentiate gifted from non-gifted students. *Roeper Review*, 16, 286-289.
- Mischel, W. (1993). *Introduction to Personality*. Orlando, FL: Harcourt Brace.
- Moon, S. M., Swift, M., & Shallenberger, A. (2002). Perceptions of a self-contained class for fourth- and fifth-grade students with high to extreme levels of intellectual giftedness. *Gifted Child Quarterly*, 46, 64-79.
- Moos, R., & Trickett, E. J. (1987). *Classroom Environment Scale*. Palo Alto, CA: Consulting Psychologist's Press.
- Morganti, J. B., Nehrke, M. F., Hulicka, I. M., & Cataldo, J. F. (1988). Life-span differences in life satisfaction, self-concept, and locus of control. *International Journal of Aging and Human Development*, 26, 45-56. Retrieved from <http://baywood.com/search/PreviewJournal.asp?qsRecord=45>.
- Nail, J. M., & Evans, J. G. (1997). The Emotional Adjustment of Gifted Adolescents: A view of global functioning. *Roeper Review*, 20, 18-21.
- Neihart, M. (1999). The impact of giftedness on psychological well-being: What does the empirical literature say? *Roeper Review*, 22, 10-17.
- Nelson, G. (1984). The relationship between dimensions of classroom and family environments and the self-concept, satisfaction, and achievement of grade 7 and 8 students. *Journal of Community Psychology*, 12, 276-287.
- Noble, K. D., & Smyth, R. K. (1995). Keeping their talents alive: Young women's assessment of radical, post-secondary acceleration. *Roeper Review*, 18, 49-55.
- Noble, K. D., Subotnik, R. F., & Arnold, K. D. (1999). To thine own self be true: A new model of female talent development. *Gifted Child Quarterly*, 43, 140-149.

- Norusis, M. J. (1994). SPSS Advanced Statistics 6.1. Chicago, IL: SPSS Inc.
- Olszewski-Kubilius, P. M., Kulieke, M. J., Krasney, N. (1988). Personality dimensions of gifted adolescents: A review of the empirical literature. *Gifted Child Quarterly*, 32, 347-352.
- Parke, B. N., & Buescher, T. M. (1982). Evaluating programs for the gifted through student self-documentation. *Roeper Review*, 5, 15-17.
- Parker, W. (1996). Psychological adjustment in mathematically gifted students. *Gifted Child Quarterly*, 40, 154 -157.
- Pfeiffer, S. I., & Stocking, V. B. (2000). Vulnerabilities of academically gifted students. *Special Services in the Schools*, 16, 83-93.
- Phillips, B. N. (1993). *Educational and psychological perspectives on stress in students, teachers, and parents*. Brandon, VT, US: Clinical Psychology Publishing Co, Inc.
- Plucker, J A., & Stocking, V. B. (2001). Looking outside and inside: Self-concept development of gifted adolescents. *Exceptional Children*, 67, 535-548.
- Plucker, J. A., Robinson, N. M., Greenspoon, T. S., Feldhusen, J. F., McCoach, D. B., & Subotnik, R. F. (2004). It's not how the pond makes you feel, but rather how high you jump. *American Psychologist*, 59, 268 -269.
- Reeder, K. R. (1998). Effectiveness of the Multidimensional Self-Concept Scale: Its developmental usage. *Dissertation Abstracts International*, Vol 59(3-A), (0726).
- Renzulli, J. S. (1977). The enrichment triad model: A plan for developing defensible programs for the gifted and talented. *Gifted Child Quarterly*, 21, 227-233.
- Renzulli, J. S. (1978). What makes giftedness? Reexamining a definition. *Phi Delta Kappan*, 60, 180 - 184.

- Renzulli, J. S. (1984a). Evaluating programs for the gifted: Four questions about the larger issues. *Gifted Education International*, 2, 83-87.
- Renzulli, J. S. (1984b). The Triad/Revolving Door system: A research-based approach to identification and programming for the gifted and talented. *Gifted Child Quarterly*, 28, 163-171.
- Renzulli, J. S., & Reis, S. M. (2003). The Schoolwide Enrichment Model: Developing Creative and Productive Giftedness. In N. Colangelo & G. A. Davis (Eds.), *Handbook of Gifted Education (3rd. Ed.)*. Toronto, ON: Pearson Education Inc.
- Renzulli, J. S., & Reis, S. M. (2000). The Schoolwide Enrichment Model, *International handbook of giftedness and talent (2nd ed.)*. New York, NY, US: Elsevier Applied Science Publishers/Elsevier Science Publishers.
- Renzulli, J. S., & Reis, S. M. (1994). Research related to the Schoolwide Enrichment Triad Model. *Gifted Child Quarterly*, 38(1), 7-20.
- Renzulli, J. S., & Smith, L. H. (1977). Two approaches to identification of gifted students. *Exceptional Children*, 43, 512-518.
- Reynolds, G. P. (1997). Gender, learning style, locus of control, self-concept and achievement of gifted middle school students. *Dissertation Abstracts International*, 58(6-A), (2088).
- Rogers, K. B. (2002). Grouping the gifted and talented: Questions and answers. *Roeper Review*, 24, 102-107.
- Rotatori, A. F. (1994). Multidimensional Self Concept Scale. *Measurement and Evaluation in Counseling and Development*, 26, 265-268.

- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331.
- Ryan, R. M., & Deci, E. L. (2000). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, Vol 52, 141-166.
- Saklofske, D. H., & Greenspoon, P. J. (2000). Confirmatory factor analysis of the MSLSS: A reply to Shevlin et al. *Personality and Individual Differences*, 28, 187-190.
- Sapon-Shevin, M. (1994). *Playing favorites: Gifted education and the disruption of community*. Albany, NY, US: State University of New York Press.
- Sapon-Shevin, M. (1996). Beyond gifted education: Building a shared agenda for school reform. *Journal for the Education of the Gifted*, 19(2), 194-214
- Sarouphim, K. M. (1999). Discover: A promising alternative assessment for the identification of gifted minorities. *Gifted Child Quarterly*, 43(4), 244-251.
- Saskatoon Board of Education (1971). The Goals for Academically-Talented Classes in Terms of Behavioural Outcomes by the End of Grade Eight. Unpublished Document. Saskatoon, SK, Canada.
- Saskatoon Public School Division (2005). The Actal program. Retrieved January, 2005, from http://schools.sbe.saskatoon.sk.ca/greys/AcTal/actal_program.htm
- Saskatoon Public School Division. (2001a). The Actal Program - Greystone Heights School (pp. 10). SK, Saskatoon. Retrieved, April 5th, 2003, from http://schools.sbe.saskatoon.sk.ca/greys/AcTal/greystone_heights.htm

Saskatoon Public School Division. (2001b). The Actal Program - Caswell School (pp. 4).

Retrieved, April 5th, 2003 from [http://schools.sbe.saskatoon.](http://schools.sbe.saskatoon.sk.ca/greys/AcTal/caswell.htm)

[sk.ca/greys/AcTal/caswell.htm](http://schools.sbe.saskatoon.sk.ca/greys/AcTal/caswell.htm)

Saudargas, R. A. (1989). Review of the Classroom Environment Scale, Second Edition.

Buros Mental Measurements Yearbook (Vol. 10). Lincoln, NB: Buros Institute of Mental Measurements, University of Nebraska Press, 1994.

Schenkel, L. A. (2001). Optimal educational experiences and their relationship to self-concept and flow in adolescent high-ability and gifted learners. *Dissertation Abstracts International, Vol 62(2-A), (521)*.

Schwean, V. L. (2003). *Evaluation of the AcTal Program*. Unpublished report.

Saskatoon, SK: Saskatoon Public School Division.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research, 46*, 407-441.

Shechtman, Z. (1997). Enhancing social relationships and adjusting behavior in the Israeli classroom. *Journal of Educational Research, 91*, 99-107. Retrieved September 10th, 2003 from <http://www.heldref.org/html/jer.html>.

Shields, C. M. (1995). A comparison study of student attitudes and perceptions in homogeneous and heterogeneous classrooms. *Roeper Review, 24*, 115-119.

Shields, C. M. (1996). To Group or Not to Group Academically Talented or Gifted Students? *Educational Administration Quarterly, 32*, 295-323.

Smith, C. R. (1989). *Review of the Classroom Environment Scale, Second Edition*.

Lincoln, NE: Buros Institute of Mental Measurements (Vol. 10).

- Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology*, 52, 83-110.
- Sternberg, R. J., & Grigorenko, E. L. (2002). The theory of successful intelligence as a basis for gifted education. *Gifted Child Quarterly*, 46, 265-277.
- Sullivan, J. (1998). *Dimensions of classroom environment as related to students' self-control and academic self-concept*. *Dissertation Abstracts International*, 59(4-A), (AAT 9830768).
- Szabos, J. (1989). *Bright Child or Gifted Learner?* Retrieved May 13, 2003, from <http://www.eanes.k12.tx.us/fte/GT/brightgifted.htm>.
- Terry, T., & Huebner, E. S. (1995). The relationship between self-concept and life satisfaction in children. *Social Indicators Research*, 35, 39-52.
- Traxler, M. A. (1987). Gifted education program evaluation: A national review. *Journal for the Education of the Gifted*, 10, 107-113.
- Trickett, E. J., Leone, P. E., Fink, C. M., & Braaten, S. L. (1993). The perceived environment of special education classrooms for adolescents: A revision of the Classroom Environment Scale. *Exceptional Children*, 59, 411-420.
- Trickett, E. J., & Quinlan, D. M. (1979). Three domains of classroom environment: Factor analysis of the classroom environment scale. *American Journal of Community Psychology*, 7, 279-291.
- Trickett, E. J., & Wilkinson, L. (1979). Using individual or group scores on the perceived environment scale: Classroom environment scale as example. *American Journal of Community Psychology*, 7, 497-502.

- Uresti, R., Goertz, J., & Bernal, E. M. (2002). Maximizing achievement for potentially gifted and talented and regular minority students in a primary classroom. *Roeper Review*, 25, 27-31.
- Valentine, J. C. (2002). *The relation between self-concept and achievement: A meta-analytic review*, 62(9-B), (4278), (UMI AAI3025656).
- Veenhoven, R. A. (2000). The four qualities of life: Ordering concepts and measures of the good life. *Journal of Happiness Studies*, 1, 1-39. Retrieved June 10th, 2003, from <http://www.wkap.nl/journalhome.htm/1389-4978>.
- Walberg, H. J. (1972a). Social environment and individual learning: A test of the Bloom model. *Journal of Educational Psychology*, 63, 69-73.
- Walberg, H. J. (1972b). Urban schooling and delinquency: Toward an integrative theory. *American Educational Research Journal*, 9, 285-300.
- Walberg, H. J., & Anderson, G. J. (1972). Properties of the achieving urban classes. *Journal of Educational Psychology*, 63, 381-385.
- Walberg, H. J., Singh, R., & Rasher, S. P. (1977). An operational test of a three-factor theory of classroom social perception [Electronic Version]. *Psychology in the Schools*, 14, 508-513.
- Walberg, H. J., Sorenson, J., & Fischbach, T. (1972). Ecological correlates of ambience in the learning environment. *American Educational Research Journal*, 9, 139-148.
- Walberg, H. J., & Thomas, S. C. (1972). Open education: An operational definition and validation in Great Britain and United States. *American Educational Research Journal*, 9, 197-208.

- Walsh, W. B. (2003). Person-environment Psychology and Well-being. In W. B. Walsh (Ed.), *Counselling Psychology and Optimal Human Functioning*. Mahwah, N.J.: L. Erlbaum Associates
- Waxman, H. C., & Huang, S. Y. L. (1996). Motivation and Learning Environment Differences in Inner-City Middle School Students. *Journal of Educational Research*, 90, 93-102.
- Wells, L., Jr. (1998). The effects of ethnicity on the quality of student life: An embedded intergroup analysis. *Journal of Applied Behavioral Science*, 34, 403-417.
- Widdifield-Konkin, L. (2004). *A Comparative Study of Emotional Intelligence and Self-Concept Within Academically Talented Students*. Unpublished Master's, University of Saskatchewan, Saskatoon.
- Wilson, P. L. (1998). Multidimensional Self Concept Scale: An Examination of Grade, Race, and Gender Differences in Third through Sixth Grade Students' Self-Concepts, *Psychology in the Schools* (Vol. 35, pp. 317-326).
- Winner, E. (2000). The origins and ends of giftedness. *American Psychologist*, 55, 159-169.
- Worrell, F. C. (2002). Global and domain-specific self-concepts in academically talented Asian American and White adolescents. *Gifted Child Quarterly*, 46, 90-97.
- Wright, P. B., & Leroux, J. A. (1997). The self-concept of gifted adolescents in a congregated program. *Gifted Child Quarterly*, 41, 83-94.
- Yang, H. (2002). Subjective well-being and self-concept of elementary school teachers. *Chinese Mental Health Journal*, 16, 322-330.

- Young, E. L. (2002). Gender differential item functioning in the Multidimensional Self Concept Scale with a sample of fourth- and fifth-grade students. *Dissertation Abstracts International, Vol 62(11-B), (5426), (UMI AAI3030346)*.
- Zanobini, M., & Usai, M. C. (2002). Domain-specific self-concept and achievement motivation in the transition from primary to low middle school. *Educational Psychology, 22*, 203-217.
- Zeidner, M., & Schleyer, E. J. (1998). The big-fish-little-pond effect for academic self-concept, test anxiety, and school grades in gifted children. *Contemporary Educational Psychology, 24*, 305-329. Retrieved from <http://www.idealibrary.com/links/doi/3101006/ceps19980985>.
- Zeidner, M., & Schleyer, E. J. (1999a). Evaluating the Effects of Full-Time vs Part-Time Educational Programs for the Gifted: Affective Outcomes and Policy Considerations. *Evaluation and Program Planning, 22*, 413-427.
- Zeidner, M., & Schleyer, E. J. (1999b). Test anxiety in intellectually gifted school students. *Anxiety, Stress and Coping: An International Journal, 12(2)*, 163-189. Retrieved from <http://www.tandf.co.uk/journals/gb/10615806.html>.

Appendix A

APPLICATION TO THE UNIVERSITY OF SASKATCHEWAN ADVISORY COMMITTEE ON ETHICS IN BEHAVIOURAL SCIENCE RESEARCH

UNIVERSITY OF SASKATCHEWAN ADVISORY COMMITTEE ON ETHICS IN BEHAVIOURAL SCIENCE RESEARCH

1. Name of Researcher(s) and Department(s)

Dr. Vicki Schwean, Professor and Department Head, Department of Educational Psychology and Special Education (Supervisor)

1a. Jason Jordan, Master of Education Candidate, Department of Educational Psychology and Special Education, University of Saskatchewan

Leslie Widdifield-Konkin, Master of Education Candidate, Department of Educational Psychology and Special Education, University of Saskatchewan

1b. Start Date of Research Study:	November, 2003
Completion Date of Research Study:	December, 2003

2. Working Title of Study

Psychosocial Effects of Gifted Programming

3. Abstract

There is considerable controversy in the literature concerning the needs of children who are intellectually gifted. Questions surround the most effective delivery model for teaching and enhancing the psychosocial well-being of these students. The objective of this study is to ascertain whether psychosocial wellbeing increases as a function of specialized classroom placement. The underlying question is, "Are students receiving psychosocial benefits from their participation in a specialized program designed for Academically Talented Students?" In searching for an answer to this question, academically talented students, in grades five through eight, who qualified for a specialized, congregated program, but who chose to continue with regular school programming, will be compared to students who are participating in the program. Mean scores on established measures of self-concept, perception of classroom environment, student life-satisfaction, and emotional intelligence will be examined for between-group differences. Comparisons to normative data will be examined for each group, and the strength of relationship between the dependent variables (i.e., psychosocial factors) will also be examined for between-group differences.

4. Funding

No funding has been awarded for this study. However, authors of the Bar-On Emotional Quotient Inventory (EQI), Dr. Reuven Bar-On and Dr. James Parker and associates, may be allowed access to the aggregated data, in exchange for their provision of emotional intelligence test protocols.

5. Participants

It is planned that all students who are currently participating in the AcTal program will have an opportunity to participate in this study, along with all students in the past four years who were eligible to participate in AcTal, but who chose not to.

The specified protocol, according to the “Guidelines for Conducting Research in Saskatoon Public Schools” will be followed. That is, upon application review and approval for this research by the Deputy Director, Karen Andersen, the school principals of the AcTal-providing schools, Greystone and Caswell, will be contacted and informed of the nature and time commitments for the students and teachers affected by the study. The Saskatoon Public School Division Pupil Services department will contact the principals of schools containing students who were previously offered an AcTal placement but chose not to accept. This will ensure anonymity for those students who do not wish to participate in this study. The researchers are willing, and intend to discuss the nature and time commitments of the study with teachers, with permission of the respective school’s principals. Once approval has been given by administrators and teachers of the classes of the AcTal students involved in the study, the researcher will visit the classes to briefly introduce the study and to send home the information and student/parental consent forms via the students. It is intended that signed consent forms be returned to the school by the AcTal students, and picked-up by the researcher after approximately one week’s time. It is expected that students who elect not to participate in the study will be involved in normal school-related activities during the time of data collection.

Students and parents belonging to the population of those who were selected to participate in the AcTal program over the last four years, but who chose not to enroll, will be mailed the information packages by Saskatoon Public School Division representatives to ensure anonymity. These packages will consist of the study overview and the consent/assent form. Upon receipt of the information and consent forms, prospective participants will be encouraged to contact the researcher or the office of research services if they have questions or concerns about the study. Written consent for participation is to be returned directly to the researcher at the main office of the department of Educational Psychology (via postage-paid envelopes).

5. a No recruitment materials are being used for this study.

6. Consent

When the researchers initially visit the Academically Talented (AcTal) classes, students will receive a verbal overview of the study, along with the information and consent forms. Students will be expected to deliver the package to their parents or guardians to be overviewed and completed. They will be encouraged to forward any questions or concerns to the researchers or supervisor.

Upon receipt of signed consent forms from members of the non-AcTal group, the researchers will contact the prospective participants and their parents to overview the study, answer any questions, and to arrange appropriate times for data collection.

At all meetings between the researchers and students, the students will be reminded that they are free to withdraw from the study at any time.

7. Methods/Procedures

At the time of data collection, the researcher will initially ask participants to complete the demographics portion of their survey package, followed by introduction of the first standardized questionnaire. Next, participants will be given instructions as to how to complete it, followed by a reminder of the voluntary nature of the exercise, including the option to leave questions unanswered. All four standardized questionnaires will be administered in this way, with the anticipation that it will take 15-25 minutes to complete each of the standardized questionnaires. Appropriate breaks will be given between survey administrations.

It is intended that non-AcTal students will meet directly with the experimenter to complete the self-report forms. Likewise, AcTal students who have consented to participate and are not available on the day of data collection will be contacted and administered surveys individually.

8. Storage of Data

All data will be secured in a locked facility, whereby Dr. Schwean will store the data for a minimum of five years after the completion of the study, in accordance with University of Saskatchewan Regulations. The master list of consent forms and demographic information will be stored in a room separate from the survey data.

9. Dissemination of Results

Data will be reported in aggregate form. It will initially appear in two master's theses completed by the researchers, and the results and data may subsequently appear in scholarly journals.

10. Risk or Deception

There are no aspects of this study that will involve any risk to the participants or involve the deception of participants. The purpose and objectives of this study will be revealed to the participants during the initial meeting between the researcher, teachers, and students.

11. Confidentiality

Participant's anonymity and confidentiality will be protected in this study through a system where only numbers will be coded to the materials belonging to students. Students will receive the number-coded package of materials upon submission of their consent and demographics forms. The only demographic data needed for this study is age, grade, gender, and Actal placement. The consent forms will be stored apart from the survey and demographic data to prevent the association of names with data. Again, results pertaining to, or potentially identifying participants will not be reported, and individual results, including personal test results, will not be available to participants. Participants will enclose their data in envelopes and will place the envelopes in a pile to be retrieved by the experimenter. Two sets of envelopes, differing in color, will be used to collect data and help discern the data from the two groups.

12. Data/Transcript Release

Participants will have the right to withdraw any or all of their responses without penalty. There will be no information communicated which will make participants identifiable.

13. Debriefing and Feedback

A brief written summary of the results of the studies will be sent home with each of the participants. Participants and parents will be encouraged to contact the researcher or supervisor, via email or telephone, if they have any questions or concerns about the study during and following receipt of the summary. A copy of each of the theses will be made available at each of the AcTal schools and at the Saskatoon Public School Division office upon completion.

13. Signatures

Jason Jordan, Master's Candidate, Department of Educational Psychology and Special Education

Leslie Widdifield-Konkin, Master's Candidate, Department of Educational Psychology and Special Education

Dr. Vicki Schwean, Supervisor and Department Head, Department of Educational Psychology and Special Education

14. Contact Name and Information:

Vicki Schwean, Ph.D.
Research Supervisor and Department Head
University of Saskatchewan
College of Education
Department of Educational Psychology
and Special Education
Phone: (306) 966-5246
Fax: (306) 966-7719
Vicki.schwean@usask.ca

APPENDIX B
CONSENT FORM

Consent Form

Note: This form is to be read and completed by all participants in this study.

You are invited to participate in a study entitled, “**The Psychosocial Effects of Gifted Programming**”. Please read this form carefully, and feel free to ask any questions you may have. Also feel free to discuss this information with your child.

Research Supervisor

And Department Head

Vicki Schwean, Ph.D
University of Saskatchewan
College of Education
Department of Educational Psychology
And Special Education
Phone: (306) 966-5246
vicki.schwean@usask.ca

Researchers

Jason Jordan and Leslie Widdifield-Konkin
Graduate students
University of Saskatchewan
College of Education
Department of Educational Psychology and
Special Education
Phone: Jason 241-3371 or Leslie 242-6765
Email: Jason, jjj119@mail.usask.ca or
Leslie, Widdifield-KonkinL@spsd.sk.ca

Purpose and Procedure:

The main objective of this study is to obtain further evidence toward answering the question, “Are students receiving psychosocial and emotional benefits from their participation in the Academically Talented program of Saskatoon Public Schools?” This study will involve comparing gifted students in the Academically Talented Program (AcTal) to gifted students in regular academic programs, who were previously invited to participate in AcTal, but who chose not to enroll in the program.

Participants will be asked to complete self-report questionnaires pertaining to four domains: self concept (how students perceive themselves, their abilities and their experiences in a number of areas: school and achievement, with family, and with peers), perceptions of classroom environment (i.e., student’s opinions and views of rules, school work, order and organization, teacher support, etc.), student life satisfaction (student’s level of content with their current life situation as a student), and emotional intelligence (understanding oneself and others, relating to people, adapting to changing environmental demands, and managing emotions). Each questionnaire will take approximately 15 to 25 minutes to complete. Additionally, it is requested that parents complete a questionnaire concerning factors related to their child’s emotional intelligence and teachers will be asked to complete a similar form for each of the study participants they are working with. It is expected that each of these surveys may require approximately fifteen minutes to complete.

Data from this study is intended to be used for two master’s theses and for publication in scholarly journals.

Potential Risks:

Please note that there are no foreseeable risks to you or your child as a result of participation in this study.

Potential Benefits:

The information obtained from this study should help to ascertain factors thought to affect and reflect the success and satisfaction of students in AcTal and other programs for gifted students, with the general purpose of expanding knowledge of the social and emotional lives of gifted students. This information may be used for the purpose of improving programming for gifted and non-gifted students in Saskatoon Public Schools and other school systems.

Confidentiality:

Although the data for this study may be published and presented at conferences, the data will be reported in aggregate form, so that it will not be possible to identify individuals. The coded consent forms will be stored apart from the demographic data (grade, age, gender) and survey data, so that it will not be possible to associate names with any given set of responses.

All materials will be stored in a locked facility by one of the researchers, Jason Jordan or Leslie Widdifield-Konkin, or one of our committee members, Dr. Vicki Schwean, Dr. Don Saklofske, or Dr. Brian Noonan.

Right to Withdraw: You may withdraw from the study for any reason, at any time, without penalty of any sort. If you withdraw from the study at any time, the data that you have contributed will be destroyed. As participation is purely voluntary, participants may also choose to answer some or all of the questions on all of the surveys, while leaving out questions that you may be uncomfortable in answering. You will be informed of any new information that may arise, which could affect your decision to remain as a participant in the study.

Questions:

If you have any questions concerning the study, please feel free to ask at any point; you are also free to contact the researchers at the numbers and internet addresses provided above if you have any questions now or later in time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Sciences Research Ethics Board on **October....**

Any questions regarding your rights as a participant may be addressed to that committee through the Office of Research Services (966-2084). Out of town participants may call collect.

A written summary of the study results will be given to all participants to be brought home to show to parents/guardians. The theses containing the results of this study will be distributed to both AcTal schools, and a copy will be available at the Saskatoon Public School Division office.

Parental/Guardian Consent to Participate

I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I give consent for my child to participate in the study described above understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

(Signature of Parent/Guardian)

(Date)

(Signature of Researcher)

Student Assent to Participate

I _____ (first and last name) also understand the reason for the study, the contents of the consent form, and my expectations as a participant in this study. I agree to participate in this study.

(Signature of Student)

(Date)

(Signature of Researcher)

BIOGRAPHICAL INFORMATION

A. Gender (circle one): Male Female

B. Date of Birth: Day:_____ Month:_____ Year:_____

C. Grade: _____

D. Please place a checkmark next to the statement which most accurately describes you:

I am currently enrolled in an AcTal program. _____

I was previously enrolled in an AcTal program. _____

I was offered an AcTal program placement, _____

APPENDIX C**APPROVAL FROM THE UNIVERSITY OF SASKATCHEWAN ADVISORY
COMMITTEE ON ETHICS IN BEHAVIOURAL SCIENCE RESEARCH**

DEC-11-2003 14:07

P.01/01



**UNIVERSITY OF SASKATCHEWAN
BEHAVIOURAL RESEARCH ETHICS BOARD**

<http://www.usask.ca/research/ethics.shtml>

NAME: Vicki Schwan (J. Jordan & L. Widdifield-Konkin)
Educational Psychology & Special Education

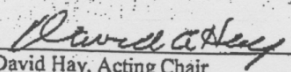
BSC#: 03-1276

DATE: November 25, 2003

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the Application for Ethics Approval for your study "Psychosocial Effects of Gifted Programming" (03-1276).

1. Your study has been APPROVED.
2. Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Committee consideration in advance of its implementation.
3. The term of this approval is for 5 years.
4. This approval is valid for five years on the condition that a status report form is submitted annually to the Chair of the Committee. This certificate will automatically be invalidated if a status report form is not received within one month of the anniversary date. Please refer to the website for further instructions: <http://www.usask.ca/research/behavrsc.shtml>

I wish you a successful and informative study.


Dr. David Hay, Acting Chair
University of Saskatchewan
Behavioural Research Ethics Board

DH/ck

Office of Research Services, University of Saskatchewan
Room 1607, 110 Gymnasium Place, Box 5000 RPO University, Saskatoon SK S7N 4J8 CANADA
Telephone: (306) 966-8576 Facsimile: (306) 966-8597
<http://www.usask.ca/research>

TOTAL P.01

APPENDIX D

APPROVAL FROM THE SASKATOON PUBLIC SCHOOL DIVISION



**Saskatoon
Public School
Division**

Caring to Learn - Learning to Care

310 - 21st Street East, Saskatoon, Saskatchewan S7K 1M7

Tel: (306) 683-8200 • Fax: (306) 683-8207

www.spsd.sk.ca

Mr. Terry Pearson, Director of Education

January 7, 2004

Ms Leslie Widdifield-Konkin
130 Cochin Terrace
Saskatoon SK S7K 4S9

Dear Ms Widdifield-Konkin: *Leslie*

I have received and approved your request to conduct research in the Saskatoon Public School Division. Your study entitled, "Psychosocial Effects of Gifted Programming" promises to provide interesting and relevant information.

Please work directly with principals at Greystone and Caswell and with Kim Swan, Coordinator of Pupil Services to work out details. Your request that the teachers in the ACTal program complete a checklist for each of their students, may be unreasonable given the teachers' workloads. Please discuss this with the teachers when requesting their permission to participate.

Our staff voluntarily participate in research and are free to withdraw from the research at any time.

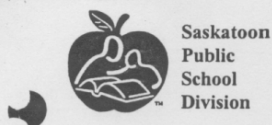
Upon completion of your research, we request that you submit a bound copy to our office. Best wishes for success with your study.

Yours truly,

Karen Anderson, Deputy Director
DEPARTMENT OF DIVISION SERVICES

/mf

APPENDIX E**ADMISSION SCREENING FORM FOR THE ACTAL PROGRAM**



Admission Screening Form For The ACTAL Program

Revised September 2003

Student Name (last name, first name): (please print)		Gender: M F	Date: (D/M/Y)
Home Address:			
School:	Grade:	Age:	Birthdate:
Indicate:	<input type="checkbox"/> Sibling in ACTAL	<input type="checkbox"/> French Immersion	<input type="text"/> Language Spoken at Home
	<input type="checkbox"/> Parent Notified	<input type="checkbox"/> Parent Support	
Resource/Pupil Services Involvement (please specify):			
Teacher's Name:			
Does student reside outside your school area? Yes _____ No _____			

ABILITY AND ACHIEVEMENT TESTS

TCS (Grade 4 or most recent)	Attach photocopied strip						
CAT/3 (Grade 4 or most recent)	Attach photocopied strip						
Individual Intelligence Test (record scores)	SB	VR	AVR	QR	STM	TC	Date
	WISC-III	VS		PS		FS	Date

OFFICE USE ONLY

Code: I – Invite W – Waiting List N – No Placement	
Caswell Community School	Greystone Heights School
Grade 5 _____	Grade 5 _____
Grade 6 _____	Grade 6 _____
Grade 7 _____	Grade 7 _____
Grade 8 _____	Grade 8 _____
Comments	

1. Comment in each of the following areas:

<p>SPECIAL NEEDS (academic, social emotional)</p> <p>•</p> <p>•</p> <p>•</p> <p>•</p>	<p>SPECIAL STRENGTHS and TALENTS</p> <p>•</p> <p>•</p> <p>•</p> <p>•</p>
<p>INTERESTS</p> <p>•</p> <p>•</p> <p>•</p> <p>•</p>	<p>LEARNING STYLE</p> <p>•</p> <p>•</p> <p>•</p> <p>•</p>

2. Describe any behavioural concerns:

3. Does this child have a peer group of students within your school with whom to share interests?

☐ Academic Comment: _____

☐ Social Comment: _____

4. Check the primary reason(s) for referring this child:

☐ high academic achievement

☐ demonstrates high ability from standardized testing

☐ under achieving for his/her ability

☐ no peer group

☐ parent request

Explain:

5. Please share relevant information arising from your contact with this child's parent(s) or guardian(s): concerns, expectations, wishes _____

6. What other information could be added to support this student's referral?

Date: _____

Teacher's Signature

Principal's Signature

APPENDIX F
EFFECTS OF GENDER

Gender Differences

There was no main effect for gender in comparing the composite scores of life-satisfaction and self-concept (*Pillai's Trace* = .026, $F(2, 193) = 2.54$, $p = .082$; no composites on classroom environment measure). However, there were differences in four subscales where girls' mean scores were higher. This occurred in two scales of the MSLSS (Friends and School) and in two domains of the Classroom Environment Scale (Affiliation and Teacher Support). Boys had an average score of 5.16 ($SD = .80$) compared to the girls' 5.56 ($SD = .74$; $F(1, 207) = 8.30$, $p = .004$) for satisfaction with Friends. The margin of difference in the domain of school satisfaction was slightly less, with the boys averaging 4.22 ($SD = .99$) compared to girls at 4.57 ($SD = 1.04$; $F(1, 207) = 7.414$, $p = .007$). Regarding dimensions related to classroom environment, the girls had a mean score of 54.37 ($SD = 5.65$) compared to 52.52 ($SD = 7.17$) for the boys on the Affiliation domain. Girls also perceived more teacher support ($M_{girls} = 52.22$; $SD = 8.92$) than the boys did [$M_{boys} = 50.67$; $SD = 9.14$; $F(1, 207) = 8.49$, $p = .004$].

Interestingly, and despite the use of slightly different measures, these results appeared largely unrelated to the particular findings from previous studies where gifted girls have been found to have elevated scores over boys [e.g., Domains of Behaviour, Intellectual and School Status, and Anxiety in Lewis & Knight (2000); Behaviour, Intellectual and School Status, and popularity (Klein & Zehms, 1996) and Self-Criticism, Moral Self-Concept (Luscombe & Riley, 2001) in main thesis reference list]. Although it is difficult to explain this finding that girls were higher than boys in the dimensions they were, it was thought that a high correlation between all four scales could be the result of a possible underlying factor of school social support, which would be stronger for girls

than that for boys (as illustrated in Table E1 below). In other words, girls would link their sense of school satisfaction more with mutual support and affiliation, than would boys.

On the contrary, the intercorrelations of these scales were generally stronger for boys than that of girls, although girls had a marginally stronger association between friendship and school satisfaction than did boys (as can be seen in the table below). The generally lower variation of scores in these scales (i.e., smaller *SDs*) among girls likely contributed to smaller correlations for girls, as girls were generally more centralized in their responses than boys too. In summary though, the girls appeared to be slightly more satisfied with school, also demonstrating a slightly higher sense of belonging and satisfaction with friends for reasons that are unknown.

Table E1. Inter-correlations, for each gender, on Scales in which Girls were Found to Have Scored Higher than Boys

	CES: Affiliation	CES: Teacher Support	MSLSS: Friends	MSLSS: School
CES: Teacher Support	Males .411 Females .303			
MSLSS: Friends	Males .430 Females .125	Males .318 Females -.085		
MSLSS: School	Males .358 Females .262	Males .306 Females .255	Males .383 Females .403	

APPENDIX G

STATISTICAL ANALYSIS WITH OUTLIERS REMOVED

Analysis with Outliers Removed

For the composite scores, the MANOVA (2 X 2 X 4) continued to reveal no significant effects (i.e., Ed Program *Pillai's Trace* $F(2, 190) = 3.59, p = .032$; Gender – *Pillai's Trace* = .031, $F(2, 190) = 2.99, p = .05$, Grade – *Pillai's Trace* = .356, $F(2, 190), p = .197$).

For the subscales, a MANOVA with the outlying cases excluded, again yielded significant main effects for Gender [*Pillai's Trace* = .214, $F(20, 171) = 2.334, p = .002$] and Education Program [*Pillai's Trace* = .219, $F(20, 170) = .001, p = .001$]. However, the subsequent ANOVA tests resulted in the MLSS Self [$F(1, 204) = .015, p = .015$] no longer yielding a statistically significant main effect for program. The differences for Academic Self Concept on the MSCS, and Innovation on the CES remained significant. All previously revealed main effects for gender remained. In summary, it appears that some very low scores in the AcTal group did have some bearing on group differences.